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BIBLIOGRAPHY

DISSERTATION[S] FOR DEGREES IN SCIENCE AND ENGINEERING DEFENDED AT USSR HIGHER EDUCATIONAL INSTITUTIONS.
Order from OTS

Trans. from Knizhnaya Letopis' [Moscow]

1957, nos. 51-52 and 1958, nos. 1-2, 370 refs. JPRS: L-1130-N, 60-11111, $1.25
1958, nos. 3-6, 234 refs. JPRS: L-1107-N, 60-11084, $0.75
1958, nos. 7-10, 385 refs. JPRS: L-1131-N, 60-11112, $1.25
1958, nos. 11-14, 487 refs. JPRS: L-1181-N, 60-11206, $1.75
1958, nos. 20-23, 568 refs. JPRS: 2251, 60-11302, $1.75
1958, nos. 33-36, JPRS: L-1187-N, 60-11235, $0.75
1958, nos. 37-40, 200 refs. JPRS: L-1182-N, 60-11217, $0.75
1958, nos. 50-52, JPRS: L-1199-N, 60-11257, $1.00

Library of Congress, Washington, D. C.
EAST EUROPEAN ACCESSIONS INDEX. Mar 60, 275p.
Order from GPO $10.00/year

Designed to serve the English-speaking user, this index lists post World War II publications received by the Library of Congress and over 100 major American research libraries from Albania, Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Rumania, and Yugoslavia in all fields of knowledge. Arrangement in the first part is by country and within each country by 17 subject classes. In addition to the entry in the original language, a translation of the title or a descriptive annotation in English is given for each monograph and periodical, with the tables of contents translated into English for selected periodicals. The second part, comprising approximately two-thirds of the Index, consists of a subject index to all articles appearing in periodicals for which the tables of contents are translated and to all monographs listed.

AGRICULTURE

Ivashko, A. A.
THE NEWEST DEVICES FOR RESEARCH IN AGRICULTURE; ON THE RESULTS OF THE INTERNATIONAL TRAVELLING EXHIBITION OF DEVICES IN MOSCOW (Noveyshiye Pribory dlya Issledovanii v Sel'skom Khozyaystve (K Itogam Mezhdunarodnoy Peredvizhnoy Vystavki Priborov v Moskve)). [1959] 17p. (13 figs. omitted). Trans. A-1095.
Order from LC or SLA mi$2.40, ph$3.30 60-15355

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 6, p. 88-97.

Animal Husbandry

ON THE VACCINE AGAINST BOTULISM IN MINKS. 23 Nov 59, 2p. Trans. V-1508.
Order from LC or SLA mi$1.80, ph$1.80 60-13487

Trans. of Veterinariya (USSR) 1959, v. 36, no. 10, p. 91.

It is announced that the Veterinary Section of the Scientific-Technical Council of the USSR Ministry of Agriculture has recommended to the All-Union Scientific Research Institute of Fur Bearing Animals Breeding and Karakul Breeding that the aluminum formal vaccine should be accepted and that manufacture of the vaccine should be started.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 6 (Soviet Abstracts. Biology). 7 Mar 60, 53p. JPRS: 2335.
Order from OTS $1.00 60-11360

Contents:
Section R. Diseases of Farm Animals. Abstracts 25957-26040.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Demidov, N. V.
METHODS OF CONTROLLING FASCIOLASIS OF LIVESTOCK (Metody Bor'by s Fastsiolezom Zhivotnykh) tr. by M. Slade. [1959] [15]p. (foreign text included) Trans. no. 4410.
Order from LC or SLA mi$2.40, ph$3.30 60-15375

Trans. of Veterinariya (USSR) 1957, v. 34, no. 10, p. 33-38.

Mittelholzer, L., Jr.
TREATMENT OF CHRONIC UDDER EDEMA (Zur Behandlung des chronischen Euteroedems). [1960] [7]p. [4 figs. omitted] 17 refs.
Order from SLA mi$1.80, ph$1.80 60-14184

Trans. of Schweiz[er] Arch[iv für] Tierh[eil]-k[unde] 1959, v. 101 [no. 12] p. 600-605.

Plant Cultivation

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 1 (Soviet Abstracts. Biology). 12 Mar 60, 41p. JPRS: 2369.
Order from OTS $1.00 60-11398

Contents:
Section J. Soil Science. Abstracts 1312-1429.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslaiva.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 13 (Soviet Abstracts. Biology). 22 Mar 60, 65p. JPRS: 2410.
Order from OTS $1.00 60-11418

Contents:
Section M. Cultivated Plants. Abstracts 58482-58594.

Complete translations of Russian-language entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 22 (Soviet Abstracts. Biology). 12 Mar 60, 5p. JPRS: 2368.
Order from OTS $1.00 60-11397

Contents:
Section N. Weeds and Weed Control. Abstracts 100543-100548.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) (Soviet Abstracts. Biology)
Order from OTS $1.00

Contents:
Section O. Plant Diseases. Abstracts 100550-100620. 1958, no. 22, Abstracts 100550-100620, JPRS: 2361, 60-11390
1959, no. 1, Abstracts 1956-2021, JPRS: 2367, 60-11396

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Aleksandrov, Boyan.
CONSERVATION OF NATURAL RESOURCES IN BULGARIA THIRD CATEGORY-FOREST RESERVES. 26 Sep 58, 9p. JPRS(NY)-L-352.
Order from OTS $0.50 PB 141 247T

Trans. of Priroda (Bulgaria) 1957, v. 6, no. 6, p. 26-28.

Andreyev, S. V., Martens, B. K. and others.
A CHAMBER OF ARTIFICIAL CLIMATE FOR RESEARCH IN THE FIELD OF PLANT PROTECTION (Kamera Idkustvennogo Klimata dlya Issledovaniya v Oblasti Zashchity Rastenii). [1959] 3p. (5 illus. omitted). Trans. A-1091.
Order from LC or SLA mi$1.80, ph$1.80 60-15351

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 6, p. 17-18.

Azimov, R. A.
A STUDY OF THE INFLUENCE OF TRACE ELEMENTS ON THE DISTRIBUTION OF SUGARS IN THE DIFFERENT ORGANS OF FRAGARIA, USING PAPER CHROMATOGRAPHY (Izucheniye Vliyaniya Microelementov na Raspredeleniye Sakharov v Razlichnoykh Organakh Fragaria Metodom Bumazhnoy Khromatografii). Feb 60 [18]p. 30 refs. RTS 1342.
Order from LC or SLA mi$2.40, ph$3.30 60-15564

Trans. of Botanicheskiy Zhurnal (USSR) 1958, v. 43, no. 6, p. 831-836.

The vegetative and reproductive organs of the strawberry were found to differ in the sugars they contain. The leaf laminae and petioles and the green fruits contained maltose, sucrose, glucose, fructose, xylose and, in certain cases, arabinose. In the initial growth period and at full maturity the fruits contained only sucrose, glucose and fructose. In the leaf laminae sucrose predominated, and in the petioles and green

and ripe fruits fructose and glucose predominated. Xylose occurred mainly in the petioles; it was found in smaller quantities in other parts of the plant. The main mobile forms of carbohydrates in the strawberry were glucose and fructose. These sugars occurred mainly in the petioles and fruits. During vegetative growth and fruit-formation zinc had no effect on the soluble sugar content of the laminae, but at fruit maturity it raised the level both of monosaccharides and sucrose. Copper, molybdenum, and boron at all stages encouraged a considerable increase in monosaccharides, particularly fructose. In the leaves of manganese-treated plants more sucrose was present during the vegetative phase, whereas at other stages the monosaccharide content increased. In the initial stage of fruit development, solutions of boric acid (0.03%), zinc sulfate (0.03%), potassium permanganate (0.06%), copper sulfate (0.02%), and mixed solutions of 0.02% boric acid plus 0.02% zinc sulfate, and 0.02% boric acid plus 0.03% ammonium molybdate intensified the conversion of translocated sugars to polysaccharide forms. Zinc, manganese, boron and the boron-zinc mixture facilitated the prolongation of anabolism at a high level. By delaying the onset of hydrolytic processes they caused extensive accumulation of polysaccharides, which on dissociation gave rise to soluble sugars, thus improving the quality of the fruits. Copper and molybdenum accelerated the onset of dissociation.

Bel'kov, V. P. and Shutov, I. V.
NEW BOOK ON THE CHEMICAL METHOD OF WEED CONTROL: CHEMICAL MEANS OF WEED CONTROL IN FORESTRY (Novaya Kniga o Khimicheskom Metode Bor'by s Sornyakami: Khimicheskiye Sredstva s Sornoy Rastitel'nost' yu v Lesnom Khozyaystve). Review of book by N. E. Dekatova. [1959] 4p. Trans. A-1078.
Order from LC or SLA mi$1.80, ph$1.80 60-15338

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 61.

Churayev, I. A.
PROBLEM OF COLORADO BEETLE CONTROL (K Probleme Bor'by s Koloradskim Zhukom). [1959] 6p. Trans. A-1075.
Order from LC or SLA mi$1.80, ph$1.80 60-15335

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 43-44.

Damanskaya, L. Yu.
MEANS FOR CONTROL OF ROOT-KNOT EELWORM (Sredstvo Protiv Gallovoy Nematody; Meterodera Radicicola). [1959] 2p. Trans. A-1099.
Order from LC or SLA mi$1.80, ph$1.80 60-15359

Trans. of Zashchita Rastenii [ot Vrediteley i Bolezney] (USSR) 1959, v. 4, no. 6, p. 41.

Tests with Soviet made "Vampam" are described. This preparation is the sodium salt of methyldithiocarbamic acid $CH_3NHC\begin{matrix}SNa\\ \diagdown\!\!\diagup\\ S\end{matrix}$), with specific gravity 1, 233 and active element of 52% (USSR) and 31% (of imported production). It is a liquid of yellow color, smelling like herring, causing irritation and burns when it touches the skin; it is used in the form of a water solution and after introduction into the soil is adsorbed quickly by its particles. Methylisothiocyanite and several other substances are products of its decomposition. It acts as a nematocide strictly locally in the place of introduction. The preparation was effective in doses from 20 to 50 g/sq m and did not produce any visible pathological changes in plants in the process of their growth and development.

Korotkikh, G. I.
HISTORY OF AERIAL FINE-DROP SPRAYING (K Istorii Aviatsionnogo Melkokapel'nogo Opryskivaniya) [1959] [2]p. Trans. A-1079.
Order from LC or SLA mi$1.80, ph$1.80 60-15339

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 63.

See also 60-15340

Kuchayeva, A. G.
USE OF ANTIBIOTICS AGAINST INSECT PESTS OF PLANTS (Primeneniye Antibiotikov Protiv Nasekomykh Vrediteley Rastenii). [1959] 6p. Trans. A-1100.
Order from LC or SLA mi$1.80, ph$1.80 60-15360

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 7, p. 138-140.

Litvinenko, S. N.
ON THE STUDY OF GROWTH SUBSTANCES: THE GIBBERELLINS (K Voprosu ob Izuchenii Rostovykh Stimulyatorov-Gibberellinov). [1959] 8p. (3 figs. omitted) 7 refs. Trans. A-1097.
Order from LC or SLA mi$1.80, ph$1.80 60-15357

Trans. of Botanicheskiy Zhurnal (USSR) 1959, v. 44, no. 5, p. 645-647.

Mel'nikov, N. N.
NEW HERBICIDE - SYMAZINE (Novyy Gerbitsid - Simazin). [1959] 3p. Trans. A-1077.
Order from LC or SLA mi$1.80, ph$1.80 60-15337

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 53.

Protsenko, A. E.
VIRUS DISEASES OF POTATOES (Virusnyye Bolezni Kartofelya). [1960] 6p. (1 illus. omitted). Trans. A-1074.
Order from LC or SLA mi$1.80, ph$1.80 60-15334

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 30-32.

Various virus diseases and measures used against them are surveyed.

Razumov, V. I. and Limar', R. S.
GIBBERELLIN AND THE POSSIBILITIES FOR ITS UTILIZATION IN PLANT GROWING. [1959] 24p. (3 figs. omitted) 54 refs. Trans. A-1098.
Order from LC or SLA mi$2.70, ph$4.80 60-15358

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 9, p. 68-78.

Information is reviewed on (1) the method of the reaction of gibberellin on a plant, (2) the treatment with gibberellin and the yield of plants, and (3) breaking the rest period of seeds and buds with the aid of gibberellin.

Ssu-Chiu, Pai
HOW TO PRODUCE TWO ABUNDANT CROPS IN A TWO-CROP RICE CULTURE PROGRAM. 23 Oct 58, 8p. JPRS(NY)-L-412.
Order from OTS $0.50 PB 141 316T

Trans. of Chung-kuo Nung-pai (Chinese People's Republic) 1958, Suppl. no. 2, p. 1-3, 6, lower half p. 33.

Starostin, S. G.
FINE-DROP AERIAL SPRAYING IN THE CONTROL OF BEET WEEVIL (Melkokapel'noye Avioopryskivaniye v Bor'be so Sveklovichnym Dolgonosikom). [1960] 5p. Trans. A-1080.
Order from LC or SLA mi$1.80, ph$1.80 60-15340

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 19-22.

See also 60-15339

Vershinin, P. V.
SYNTHETIC SOIL STRUCTURE CONDITIONERS (Ob Iskusstvennykh Pochvennykh Strukturoobrazovatelyakh). [1959] 25p. (2 figs. omitted) 26 refs. Trans. A-1072.
Order from LC or SLA mi$2.70, ph$4.80 60-15332

Trans. of *Pochvovedeniye (USSR) 1958, no. 10, p. 28-37.

A series of organic compounds that improve soil structure were suggested at the Agrophysical Institute 26 years ago. But the amount of these substances needed to obtain high indicators of structure formation was large and, therefore, served as the main obstacle to their utilization in practice. In the postwar years new structure stabilizing substances of a high molecular type of polymers comprised chiefly of derivatives of acrylic, metacrylic and maleic acids were developed in the USA. The amounts of these substances required for soil structure stabilization are 10-20 times smaller than those of humates and related substances. A study of the nature of the reciprocal action occurring between polymers and soil particles, and the method of their introduction into the soil will permit developing substances that will completely stabilize soil structure at the rate of a few tens of kilograms per hectare. (Author's conclusions)

Vorontsov, A. I.
COORDINATION CONFERENCE ON PROTECTION OF FORESTS (Koordinatsionnoye Soveshchaniye po Zashchite Lesa). [1960] 6p. Trans. A-1083.
Order from LC or SLA mi$1.80, ph$1.80 60-15343

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 4, p. 141-142.

ASTRONOMY

Shklovskiy, I. S.
CORPUSCULAR EMISSION OF THE EARLY TYPE STARS AS A POSSIBLE CAUSE OF EMISSION OF THE NEBULAE IN THE 1225-1350 Å REGION (Korpuskulyarnoye Izlucheniye Zvezd Rannykh Spektral'nykh Tipov kak Vozmozhnaya Prichina Izlucheniya Tumannostey v. Oblasti 1225-2350 Å) tr. by A. Pingell. 4 Dec 59 [12]p. 13 refs. N R L Trans. no. 770.
Order from OTS $0.50 60-21042

Trans. of *Astronomicheskiy Zhurnal (USSR) 1959, v. 36, no. 4, p. 579-584.

Elementary processes taking place during the passage of corpuscles ejected by a hot star through a gaseous nebula are considered. The charge transfer processes at the ground and excited levels and also excitation and ionization due to collisions will be most significant. As a result of such processes, the corpuscles will lose energy mainly in the form of L_α quanta with strong frequency displacements. This explains the ultraviolet emission of nebulae detected by means of rockets. The scattering of L_α quanta in the nebula by fast corpuscles, which have become partly neutralized is an additional source of emission. Thus, the source of ultraviolet emission of a gaseous nebula may be the powerful corpuscular emission of stars, the energy of which is comparable and sometimes exceeds the photon emission of these stars. (Author)

BEHAVIORAL SCIENCES

Sokolov, M. V.
CONGRESS OF THE SOCIETY OF PSYCHOLOGISTS (NO. 1). 11 Feb 60, 28p. JPRS: 2225.
Order from OTS $0.75 60-11276

Trans. of Voprosy Psikhologii (USSR) 1959 [v. 5] no. 5, p. 170-180.

Personnel and Training

SCIENTIFIC AND TECHNOLOGICAL MANPOWER RESOURCES IN CHINA. 14 Jan 60 [28]p. 54 refs. AF 1419378.
Order from LC or SLA mi$2.70, ph$4.80 60-13523

Trans. from publications of China, Hong-Kong, U. S., U. S. S. R., England, West Germany, Rumania and Hungary, 1952-59.

Anisimov, A.
A NEW REGULATION CONCERNING QUALIFICATIONS FOR PROFESSIONAL DRIVERS (Novoye Polozheniye o Prisvoyenii Kvalifikatsii Shofera) tr. by G. T. Cranford. July 59 [3]p. Library Communication no. 746; M 1043.
Order from LC or SLA mi$1.80, ph$1.80 60-13746

Trans. of Avtom[obil'nyy] Transp[ort] (USSR) 1959, v. 37, no. 2, p. 48.

Ponomarev, V.
STANDARDIZATION OF DRIVING TESTS (Uporyadochit' Priyem Ekzamenov po Vozhdemiyu Avtomobil'ya) tr. by G. T. Cranford. June 59 [1]p. Library Communication no. 745; M 1042.
Order from LC or SLA mi$1.80, ph$1.80 60-13745

Trans. of Avtom[obil'nyy] Transport (USSR) 1959, v. 37, no. 2, p. 47.

Examinations in traffic regulations are carried out by the Qualification Commission of the State Motor Inspection Institute (GOSAVTOINSPEKTSIYA) by means of a single card system. This system is used to arrange and facilitate the work of the Commission, and to set out the specific requirements for examinees. But in other ways examinations in the actual driving of the vehicle are lacking in common requirements and criteria for evaluating the skill of the examinees. In these circumstances the subjective attitude of one or other member of the Commission could become a determining factor in his testing of the driver's skill. Frequently the members of one and the same Commission make different demands on the examinee. Such diversity hampers the work of driver training institutions and lowers the standard of driving tests. State Motor Inspection Institute of the U S S R should set specific questions and criteria for the guidance of examiners during driving tests. (The translation is presented here in its entirety.)

BIOLOGICAL SCIENCES

Malmejac, J., Neverre, G. and others.
DEMONSTRATION OF DOGS WHICH HAD UNDERGONE RIGHT VENTRICULOTOMIES OF 30 TO 45 MINUTES, UNDER HYPOTHERMIA AT 19-20 (Présentation de Chiens Ayant Subi des Ventriculotomies Droites de 30 a 45 Minutes sous Hypothermie à 19-20) tr. by Tatiana Boldyreff. 12 June 59, 8p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-18144

Trans. of Afrique Française Chirurgicale (Algeria) 1958, v. 16, p. 55-57.

An intermittent intra-carotid supply of fresh blood, affords to double, on the average, the possible duration of right ventriculotomies, done under hypothermia, at 19-20°. Then the heart may remain wide open for some forty minutes and the circulatory arrest is up to fifty minutes. The splanchnic organs do not seem to be affected, at such a temperature, from such along ischemia. The encephalic and myocardial nerve regions are protected by simple intracarotid blood injections. (Author)

Anatomy and Physiology

PROBLEMS OF HEMATOLOGY AND BLOOD TRANSFUSION, 1959, VOL. 4, NO. 6. Jan 60, 78p.
Order from PP $40.00/year

Trans. of Problemy Gematologii i Perelivaniya Krovi (USSR) 1959, v. 4, no. 6, p. 3-62.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 11 (Soviet Abstracts. Biology). 9 Mar 60. 56p. JPRS: 2351.
Order from OTS $1.00 60-11380

Contents:
Section S. Human and Animal Morphology. Abstracts 50242-50440.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Bernhard, Wilhelm, Gautier, Alain, and Rouiller, Charles.
THE IDEA OF "MICROSOMES" AND THE PROBLEM OF THE CYTOPLASMIC BASOPHILIA (La notion de "Microsomes" [et le Problème de la] Basophilie Cytoplasmique) tr. by W. E. Everhardy. 22 June 59, 44p. (refs. 18 figs. omitted).
Order from LC or SLA mi$3.30, ph$7.80 59-18114

Trans. of Arch[ives] d'Anat[omie] Microsc[opique] (France) 1954, v. 43, p. 236-271.

Donnet, V. and Ardisson, J-L.
RECENT DATA REGARDING PULMONARY CIRCULATION (Données Recentes sur la Circulation Pulmonaire) tr. by W. Grosjean. 21 Nov 58, 116p. (11 figs. and bibliography omitted).

Order from LC or SLA mi$6.00, ph$18.30 59-12291

Trans. of Journal de Physiologie (France) 1958, v. 50, no. 3, p. 587-661 (p. 650-661 omitted).

Kasatkin, N. I.
EARLY ONTOGENESIS OF REFLEX ACTIVITY IN THE CHILD tr. by P. V. DePorte. 23 Feb 60, 33p. No. 2-31-60.
Order from LC or SLA mi$3.00, ph$6.30 60-15608

Trans. of Zhurnal Vysshey Nervnoy Deyatel'nosti (USSR) 1957, v. 7, no. 6, p. 805-818.

Biochemistry

Bocharova, L. P. and Ukraynez, N. S.
THE EFFECT OF PHOSPHORUS-ORGANIC INSECTICIDES ON ASCORBINOXIDASE. [1959].
Order from LSB $3.00 LSB-108

Trans. of *Biokhimiya (USSR) 1958, v. 23, no. 3, p. 388-389.
Another translation is available from CB.

Jayle, M. F. and Conas, G.
PROPERTIES AND CHEMICAL COMPOSITION OF SERUM HAPTOGLOBIN (Proprietés et Constitution Chimique de l'Haptoglobine Sérique) tr. by P. Hajdu. 6 May 59, 22p. 25 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-16141

Trans. of Soc[iete de] Chim[ie] Biol[ogique] Bull[etin] (France) 1952, v. 34, no. 1/2, p. 65-76.

Haptoglobin is a homogeneous α_2-globulin which can be specifically titrated by means of a peroxydase micromethod after combining it with equine hemoglobin. In the present work it is shown that (1) the molecular weight of haptoglobin calculated from nitrogen and protein sugar is approximately 120,000; (2) haptoglobin contains 5% carbohydrates, but is devoid of lipids and cholesterol; and (3) the combination between hemoglobin and haptoglobin is equimolecular, uniting 120,000 grams of the α_2 globulin called haptoglobulin 60 70,000 grams of hemoglobin. Thus haptoglobulin titration may be regarded as a specific method for α_2-globulinometry. In a normal serum the haptoglobin fraction represents 1 to 2% of total proteins. In pathological sera the haptoglobin concentration may surpass 10% of total proteins, which would account for the increase in α_2 globulins measured by electrophoresis. The increase in haptoglobin is connected with the adaptation reactions of the organism; it can also be brought about by the administration of ACTH to humans. (Author)

Kisielinski, T. and Lyszczarz, J.
ADVANCES IN RESEARCH ON THE ACTION OF ORGANOPHOSPHORUS COMPOUNDS. 11 Jan 60, 23p. 77 refs. JPRS: L-1980-D.
Order from OTS $0.75 60-31017

Trans. of Postepy Biochemii (Poland) 1959, v. 5, no. 1, p. 47-65.
Research is surveyed on the role of acetylcholine and cholinesterase in the organism and on compounds which accelerate the hydrolysis of organophosphorus poisons in the organism.

Staub, Anne-Marie.
ROLE OF ANTIPOLYSACCHARIDE ANTIBODIES IN THE AGGLUTINATION OF TYPHOID ORGANISMS (Role des Anticorps Antipolyosidiques dans l'Agglutination des Bacilles Typhiques) tr. by P. DePorte. 18 Mar 59, 26p. (4 figs. omitted) 15 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-14529

Trans. of Institut Pasteur [Paris]. Annales (France) 1954, v. 86, no. 5, p. 618-635.

Stepanenko, B. N.
SOME RESULTS OF STUDY OF THE CHEMICAL STRUCTURE OF GLYCOGENS, tr. by P. V. DePorte. 13 Jan 60, 26p. (8 figs. omitted) 33 refs. No. 1-6a-60.
Order from LC or SLA mi$2.70, ph$4.80 60-13457

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1957, no. 6, p. 706-717.

Botany

Baranov, P. A.
WITH THE CHINESE BOTANISTS. 15 Feb 60, 14p. 1 ref. JPRS: 2273.
Order from OTS $0.50 60-11293

Trans. of Akademiya Nauk SSSR. Vestnik, 1959 [v. 29] no. 9, p. 79-86.

Observations of a Soviet botanist (corresponding member of the Academy of Sciences, USSR) during a 3-month visit (October-December 1958) to botanical institutions of Peiping, Wuhan Province, Nanking, Shanghai, Hangcho, Canton, and Kunming are presented.

Moshkova, N. O.
A NEW SPECIES OF STIGEOCLONIUM IN THE FLORA OF THE UKRAINIAN RSR (Pro Novyy Vyd Stygeokloniya dlya Flory Ukrayins'koyi RSR). Mar 60 [7]p. 8 refs. RTS 1287.
Order from LC or SLA mi$1.80, ph$1.80 60-15684

Trans. of Ukrayins'kyy Botanichnyy Zhurnal (USSR) 1958, v. 15, no. 2, p. 84-86.

In the algological material collected in 1954 in the water reservoirs of the steppe zone of the Ukrainian RSR, a plant belonging to the family Chaetophoraceae and interesting from the floristic viewpoint was found, which can be related to Stigeoclonium glomeratum (Hazen) Collins. This alga corresponds best

with the original description and drawing given by Hazen (1902). The plant was found growing on ligneous substrate in two slowly running, shallow rivulets of southern Ukraine: Mertvovoda and Tyligula.

General Biology

BULLETIN OF EXPERIMENTAL BIOLOGY AND MEDICINE, 1959, VOL. 48, NO. 8, P. 917-1045. 1960, 1v.
Order from CB $10.00, $20.00/year

Trans. of Byulleten' Eksperimental'noy Biologii i Meditsiny (USSR) 1959, v. 48, no. 8, p. 3-[118].

BULLETIN OF EXPERIMENTAL BIOLOGY AND MEDICINE, 1959, VOL. 48, NO. 9, P. 1047-1182. 1960, 1v.
Order from CB $10.00, $20.00/year

Trans. of Byulleten' Eksperimental'noy Biologii i Meditsiny (USSR) 1959, v. 48, no. 9, p. 3-[132].

LYSENKO, MICHURINISM, AND SOVIET BIOLOGY. [1960] [12]p. 20 refs. PAL 59-2.
Order from OTS $0.50 60-21050

The present review of the situation in Soviet genetics and biology since 1953 tends to refute the widely held Western wishful viewpoint that totalitarianism and high-quality scientific accomplishment are inherently incompatible. Soviet biological and agricultural research are probably better than at any time since the late 1930's. Events that have helped create these favorable conditions are: (1) the removal of Lysenko as president of the All-Union Academy of Agricultural Sciences in 1956; (2) the toleration of classical geneticists and their return to research positions; (3) the official acceptance of hybrid corn; (4) the adoption of polyploidy as a breeding tool; and (5) the exploitation of biochemical and radiation methods in microbial genetics. Although the "official" point of view in Soviet biology is still Michuristic, and will probably remain so for some time, recent events suggest that ideological theories will be manipulated or interpreted so as not to place excessive barriers upon sound research in biology and agriculture. High-level statements on the future direction of Soviet biology indicate that research in fundamental genetics will stress the structural basis of heredity and variation within the cell, the physical and chemical aspects of cellular organization and processes, and the effect of external mutation-inducing factors at the cellular level. The results should be an increased agricultural production and important knowledge concerning the genetic effects of radiation.

Thiéry, J. P.
THE ERGASTOPLASM OF PLASMOCYTES IN THE LIVING STATE (L'Ergastoplasme des Plasmocytes a l'Etat Vivant) tr. by P. Hajdu. 19 Mar 59, 8p. (12 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14528

Trans. of Revue d'Hématologie (France) 1955, v. 10, no. 4, p. 745-752.

The ergastoplasm of plasmocytes can be seen in phase contrast in living cells. It is revealed in the form of a system of sacs and small channels ranged parallel around the nucleus and the archoplasm. When these cells are compressed the ergastoplasmic sacs are elongated, then vacuolized in the manner of Mott's cells. These structures may be compared to those seen in the electron microscope. (Author) (See also 59-14526)

Thiéry, J. P.
STUDY OF PLASMOCYTES IN PHASE CONTRAST AND IN THE ELECTRON MICROSCOPE. III. PLASMOCYTES WITH RUSSELL'S BODIES AND WITH CRYSTALS (Étude sur le Plasmocyte en Contraste de Phase et en Microscope Électronique. III. Plasmocytes à Corps de Russell et à Cristaux) tr. by P. Hajdu. 20 Mar 59, 15p. (22 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-14526

Trans. of Revue d'Hématologie (France) 1958, v. 13, no. 1, p. 61-77.

The formation and ultra structure of plasmocytes with Russell's bodies (Mott's cells) and plasmocytes with crystals have been studied in phase contrast microscopy and electron microscopy. The Russell bodies are produced by condensation of material assimilated by the cell and accumulated in the ergastoplasm. Large rectangular crystals may develop from the Russell bodies. Fine, spindle-shaped crystals may be produced directly from the amorphous substance accumulated in the ergastoplasm. This is a physiological development of the plasmocyte and not degeneration. High resolution electron microscopy has shown a periodic structure of the intracellular crystals, which will facilitate their identification. (Author) (See also 59-14527)

Thiéry, J. P.
STUDY ON PLASMOCYTES IN THE LIVING STATE. II. EXCRETION OF VACUOLES OF A NUCLEAR ORIGIN (Étude sur le Plasmocyte à l'État Vivant. II. Excrétion de Vacuoles d'Origine Nucléaire) tr. by P. Hajdu. 19 Mar 59, 11p. (10 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-14527

Trans. of Revue d'Hématologie (France) 1957, v. 12, no. 2, p. 211-221.

The formation of vacuoles starting out from the nucleus may be observed in plasmocytes in the phase contrast microscope. These vacuoles remain in the cytoplasm for a certain period and are then ejected into the external region. This phenomenon has been observed in ultra thin sections examined in the electron microscope. They are not alteration or degeneration vacuoles. (Author) (See also 59-14528)

Microbiology

Atanasiu, P. and Lépine, P.
MULTIPLICATION OF THE STREET RABIES VIRUS ON MOUSE EPENDYMOMA IN TISSUE CULTURE. CYTOLYTIC EFFECT (Multiplication du Virus Rabique des Rues sur la Tumeur Épendymaire de la Souris en Culture de Tissus. Effet Cytolytique) tr. by P. DePorte. 30 Jan 59, 12p. (6 figs. omitted). 22 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-12912

Trans. of Institut Pasteur, Paris. Annales (France) 1959, v. 96, no. 1, p. 72-78.

Kovaleva, V. V.
THE STUDY OF STAPHYLOCOCCUS TOXIN IN EXPERIMENT WITH DIFFUSIONAL PRECIPITATION. 4 Feb 59, 6p. (2 figs. omitted) 5 refs. JPRS: L-508-N.
Order from OTS $0.50 59-13090

Trans. of *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1958 [v. 29] no. 10, p. 129-132.

Pearson, H. E., Atanasiu, P. and Lépine, P.
MULTIPLICATION OF RABIES VIRUS IN AN ASTROCYTOMA TRANSPLANTABLE IN THE MOUSE (La Multiplication du Virus Rabique dans un Astrocytome Transmissible chez la Souris) tr. by W. Grosjean. 2 Feb 59, 6p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-12914

Trans. from Inst[itut] Pasteur, Paris. Ann[ales] (France) 1958, v. 94. Jan.

Astrocytoma, transmissible by subcutaneous passage to the C3H mouse, produces tumors of 5 to 10 g after 13 to 20 days. This tumor has the capacity of receiving rabies virus and permitting its multiplication to a titer close to the one obtained in the cerebral tissue of the normal mouse. Rabies virus causes the formation in a tumor cells of piknotic and necrotic nuclei. Mice receiving the infected tumor die from rabies on the 14th or 15th day; those receiving the infected tumor and antirabies serum die from the tumor on the 25th and the 35th day (tumor without virus). (Author)

Reiter, Hans.
ON THE PROPAGATION OF PURE CULTURES OF SPIROCHAETA PALLIDA, SPIROCHAETA DENTIUM AND SPIROCHAETA RECURRENS. [1959] 6p. 2 refs.
Order from SLA mi$1.80 60-14087

Trans. of unidentified mono., Berlin-Dahlem, n.d.

Roschka, R.
A NEW METHOD FOR THE PREPARATION OF HIGH-VALUE O IMMUNE SERA OF THE SALMONELLA GROUP. [1959] 8p. (3 tables omitted) 3 refs.
Order from SLA mi$1.80, ph$1.80 60-14090

Trans. of Klin[ische] Med[izin] (Austria) 1950, v. 5 [no. 2] p. 88-93.

Staub, A. M., Tinelli, R. and others.
IMMUNOLOGICAL STUDY ON SALMONELLAS. V. THE ROLE OF CERTAIN SUGARS, IN PARTICULAR THE 3-6 DIDESOXYHEXOSES, IN THE SPECIFICITY OF KAUFFMANN-WHITE O ANTIGENS (Étude Immunochimique sur les Salmonella. V. Role de quelques Sucres, et en Particulier des 3-6 Didésoxyhexoses, dans la Spécificité des Antigènes O du Tableau de Kauffmann-White) tr. by P. Hajdu. 21 July 59, 43p. (2 figs. omitted) 56 refs.
Order from LC or SLA mi$3.30, ph$7.80 59-18467

Trans. of Institut Pasteur, Paris. Annales (France) 1959, v. 96, no. 3, p. 303-332.

Studies on inhibition, by simple sugars of homologous and cross precipitations of anti-Salmonella sera by specific polysaccharides, allow us to establish the nature of the terminal sugars partially responsible for the specificity of 1, 2, 4, 8, 9, 12 and 35 Kauffmann-White O antigens. Among the sugars the newly discovered 3-6 didesoxyhexoses play a predominant role. The role of tyvelose (3-6 didesoxy-D-galactose) plays the same role at the end of group B antigen 4, as well as colitose (3-6 didesoxy-L-galactose) at the end of group P antigen 35. The immunological complexity of antigen 12 (12_1, 12_2, 12_3) corresponds to the presence of two side chains, one terminating in rhamnose, the other in glucose. The role played by the terminal paratose (3-6 didesoxy-D-glucose) in the specificity of group A antigen 2 is discussed as well as the role of the terminal abequose in group C_2 antigen 8. The role of this abequose in the very weak cross precipitations sometimes observed between group B antigen 4 and group C_2 antigen 8 is established. The study of cross precipitations of anti-S. paratyphi B sera by galactomannans allows us to assume the presence of the oligosaccharidic chain "abequose-galactose-mannose" in antigen 4. The importance of these results is discussed both from the bacteriological (Kauffmann-White table) and the immunological point of view (role of polar and apolar groups in the specificity of terminal sugars, cross reactions, role of species and individual on antibody specificity). These results give some chemical basis to the Kauffmann-White table, established so far only on the basis of serological data; they explain the mechanism of some cross reactions between Salmonellas; they suggest that it would be possible to prepare specific sera by a less cumbersome method than the present absorption methods. (Author)

Vuksic, Lj., Arsic, B., and others
ISOLATION OF COXIELLA BURNETI FROM STABLE DUST. 6 Oct 58, 7p. 4 refs. JPRS(DC)-L-530.
Order from OTS $0.50 PB 141 291T

Trans. of Higijena (Yugoslavia) 1956, v. 8, no. 4, p. 240-245.

Neurology and Psychiatry

Alema, G.
HALLUCINATIONS CAUSED BY LYSERGIC ACID IN A BLIND PERSON WITHOUT EYEBALLS (Allucinazioni da Acido Lisergico in Cieco Senza Bulbi Oculari) tr. by Paul V. DePorte. 20 Apr 59, 32p. 17 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-14863

Trans. of Rivista di Neurologia (Italy) 1952, v. 22, p. 720-733.

Breydo, M. G., Gurfinkel', V. S. and others.
A BIOELECTRIC CONTROL SYSTEM. 9 Feb 60, 16p. 13 refs. JPRS: 2240-N.
Order from OTS $0.50 60-11255

Trans. of Problemy Kibernetiki (USSR) 1959, no. 2, p. 203-212.

The utilization of "bio-precision signals" (i.e., neural impulses) for the purpose of controlling prosthetic devices is discussed.

Savchenko, M. G. and Shogam, A. N.
PSYCHIATRIC TRAINING IN THE USSR; THE SYSTEMS AND FORMS OF TRAINING PHYSICIAN-PSYCHIATRISTS AND NEUROPATHOLOGISTS IN THE USSR [AND] CERTAIN PROBLEMS OF THE RECONSTRUCTION OF THE TEACHING OF PSYCHIATRY. 15 Feb 60, 8p. JPRS: L-1202-N.
Order from OTS $0.50 60-11263

Trans. of Zhurnal Nevropatologii i Psikhiatrii (USSR) 1959, v. 59, no. 10, p. 1253-1255.

Pathology

PROBLEMS OF ONCOLOGY, 1959, VOL. 5, NO. 5. Jan 60, 128p.
Order from PP $60.00/year

Trans. of Voprosy Onkologii (USSR) 1959, v. 5, no. 5, p. 515-640.

Babenko, O. F., Buyanova, O. F. and others.
ALL-UNION CONFERENCE ON THE CONTROL OF PARASITIC DISEASES. 14 Mar 60, 19p. 3 refs. JPRS: 2349.
Order from OTS $0.50 60-11387

Trans. of Med[itsinskaya] Parazitol[ogiya] i Parazitarnyye Bolezni (USSR) 1959 [v. 28] no. 3, p. 364-373.

Fine, J. M., Creyssel, R., and Morel, P.
THE APPLICATION OF STARCH GEL ELECTROPHORESIS TO THE STUDY OF THE SERUM COMPONENTS IN DYSPROTEINEMIA (L'Apport de l'Électrophorèse en Gel d'Amidon a l'Etude des Constituants Protéiques Sériques au Cours des Dysprotéinemies), tr. by P. Hajdu. 3 Aug 59, 14p. (4 figs. 1 plate 5 tables omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-18800

Partial trans. of Revue d'Hematologie (France) 1959, v. 14, no. 1, p. 75-89.

Starch gel electrophoresis has been applied to the study of various dysproteinemic sera and the results have been compared to those of other methods of investigation. While of great value in the differential diagnosis of myeloma and macroglobulinemia, starch gel electrophoresis is chiefly important from the biochemical standpoint of its considerable power of selection which enables it to contribute effectively to the identification of the serum properties encountered in dysproteinemias. (Author)

Golovin, G. V.
A LONG-LASTING FOLLOW-UP OF EXPERIMENTAL BONE CONSOLIDATION BY THE GLUE "OSTEOPLAST". Feb 60 [6]p. [5 figs. omitted] 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-14266

Trans. of Vestnik Khirurgii (USSR) 1958, v. 81, no. 10, p. 67-71.

Investigations relating to the development of "seamless fixation gluing" of autotransplants in rabbits are reported. The substance used is described variously as a liquid, a paste, or a coating. Observation over a period of 3 years has established the fact that the material is perfectly harmless to the organism, and that it does not disturb the normal course of regenerating processes.

Govorov, A. I.
SCIENTIFIC SESSION OF THE MILITARY MEDICAL ORDER OF LENIN ACADEMY IMENI S. M. KIROV, USSR. 16 Dec 59, 8p. JPRS: L-1970-D.
Order from OTS $0.50 60-31007

Trans. of Voyenno-Meditsinskiy Zhurnal (USSR) 1959, no. 7, p. 91-94.

Hurter, Eric.
ARTHROSCOPY, A NEW METHOD FOR EXPLORATION OF THE KNEE (L'Arthroscopie, Nouvelle Methode d'Exploration du Genou) tr. by Tatiana Boldyreff. 8 June 59, 11p. 1 ref.
Order from LC or SLA mi$2.40, ph$3.30 50-18142

Trans. of Rev[ue de] Chir[urgie] Orthop[édique et Réparatice de l'Appareil Moteur] (France) 1955, v. 41, p. 763-766.

Ivanova, M. A.
IN THE PRESIDIUM OF THE ACADEMY OF MEDICAL SCIENCES USSR. 15 Feb 60, 12p. JPRS: 2208.
Order from OTS $0.50 60-11254

Trans. of Akademiya Meditsinskikh Nauk SSSR, Vestnik, 1959, v. 14, no. 12, p. 84-[89].

Kamenov, E.
THE TASKS OF THE MEDICAL ANTIEPIDEMIC SERVICE. 9 Oct 58, 14p. JPRS(NY)-L-364.
Order from OTS $0.50 PB 141 262T

Trans. of Zdravno Delo (Bulgaria) 1957, v. 10, no. 2, p. 1-10.

Kaufman, B. D., Gorodilova, V. V. and others.
ACCOUNT OF THE JOINT SESSION OF THE SCIENTIFIC COUNCILS OF THE ONCOLOGICAL INSTITUTES OF MOSCOW AND LENINGRAD (USSR) AND WARSAW, KRAKOW, AND GLIWICE (POLISH PEOPLE'S REPUBLIC) HELD 6-15 APR 59 IN MOSCOW AND LENINGRAD. 15 Feb 60, 18p. JPRS: 2217.
Order from OTS $0.50 60-11265

Trans. of *Voprosy Onkologii (USSR) 1959, v. 5, no. 10, p. 498-505.

Topics are noted of papers that were presented.

Karapetyan, G. N.
ALL-RUSSIAN CONGRESS OF THERAPEUTISTS (NO. 1). 16 Mar 60, 13p. JPRS: 3078.
Order from OTS $0.50 60-31095

Trans. of Klinicheskaya Meditsina (USSR) 1959, v. 37, no. 6, p. 6-14.

Topics are noted of papers that were presented to the Congress, which met in Moscow on December 8 to 13, 1958. Titles and authors of some of the papers are given, and in some cases brief summaries of the papers are presented.

Kommerell, B.
DISPLACEMENT OF THE OESOPHAGUS BY AN ABNORMAL COURSE OF THE ARTERIA SUBCLAVIA DEXTRA (ARTERIA LUSORIA) tr. by J. B. Sykes. 1955 [10]p. 6 refs. A. E. R. E. Lib/Trans. 559.
Order from SLA mi$1.80, ph$1.80 59-17478

Trans. of Gebiete der Röntgenstrahlen [sic] 1936, v. 54, no. 6, p. 590-595.

Nikiforov, N.
QUALITATIVE INDEXES IN ANTIEPIDEMIC WORK. 9 Oct 58, 2p. JPRS(NY)-L-365.
Order from OTS $0.50 PB 141 263T

Trans. of Zdravno Delo (Bulgaria) 1957, v. 10, no. 2, p. 39.

Samoylova, L. M.
ALL-UNION CONGRESS OF PATHOLOGICO-ANATOMISTS (NO. 3). 15 Mar 60, 10p. JPRS: 2362.
Order from OTS $0.50 60-11391

Trans. of Sovetskaya Meditsina (USSR) 1959 [v. 23] no. 12, p. 124-128.

Topics are noted of papers that were presented to the Congress, which met in Khar'kov on July 6 to 11, 1959. Titles and authors of some of the papers are given, and in a few cases brief summaries of the papers are included.

Schaub, F.
PROGNOSIS OF SUBACUTE BACTERIAL ENDOCARDITIS (Zur Prognose der Endocarditis Lenta). Feb 60 [8]p. [2 figs. omitted] 2 refs.
Order from SLA mi$1.80, ph$1.80 60-14179

Trans. of Cardiologia (Switzerland) 1959, v. 35 [no. 5] p. 316-323.

An analysis is presented of the various factors which determine the outcome of the disease and which have to be considered for the choice and the doses of the antibiotic and the duration of its application. The analysis is based on 156 personal cases followed from 1 to 11 1/2 years after the acute illness. The total mortality is 33% (15% in the first 2 months, 17% for the long term follow up period).

Vesin, P., Renault, H., and Cattan, R.
IDIOPATHIC HYPOPROTEINEMIA. A STUDY OF ITS MECHANISM WITH THE POLYVINYLPYRROLIDONE-I^{131} TEST (L'Hypoprotéinémie Idiopathique. Étude de son Mécanisme par le Test au Polyvinylpyrrolidone-I^{131}) tr. by P. Hajdu. 30 June 59, 7p.
Order from LC or SLA mi$1.80, ph$1.80 59-18133

Trans. of Société Médicale des Hôpitaux de Paris. Bulletins et Mémoires (France) 1959 [ser. 4] v. 75, p. 9-11 and 319-322.

In a patient with idiopathic hypoproteinemia with a spruelike syndrome, the intravenous administration of a macromolecule, namely polyvinylpyrrolidone, labeled with I^{131}, shows considerable passage of the labeled substance into the intestine. This patient may be classed within the framework of Gordon's "exudative enteropathy" in which hypoalbuminemia is attributed not to an insufficient hepatic synthesis, but to an intestinal loss of proteins. The importance of Gordon's test with P. V. P., as a means of studying hypoproteinemias, is emphasized. (Author)

Verlinde, J. D., Wilterdink, J. B. and others.
ACTIVE IMMUNIZATION AGAINST POLIOMYELITIS WITH A VACCINE OF ATTENUATED VIRUS, PTS. I AND II tr. by P. Pallamary (pt. I). 27 Oct 58, 37p. 37 refs.

Order from LC or SLA mi$3.00, ph$6.30 59-12108

Trans. of Nederlands Tijdschrift voor Geneeskunde (Netherlands) 1958, v. 102, no. 24, p. 1144-49 (pt. II).

Thirty-nine strains (14 of type I, 6 of type II and 19 of type III) isolated from the stools of 21 vaccinated subjects were tested for neurotropism by intraspinal and intracerebral inoculation of Cynomolgus monkeys. None of the type I and type II strains showed any increase of neurotropism, but a slightly increased neurotropism was seen in three type III strains isolated from the stools of 2 individuals. This increase was so slight that only doses of 10^7 TDC_{50} or higher proved to be paralytogenic or intracerebral inoculation. This increased neurotropism was demonstrable only in strains isolated 15, 16 and 21 days after feeding, whereas strains of the same type isolated from the same individual either earlier or later did not show any increase of neurotropism. This indicates that the alimentary tract does not selectively favor the development of neurotropic virus particles. So far there seems to be no reason to assume that this method of vaccination might lead to the circulation of virus with a high neurotropic activity. (Author)

Vesin, P., Paolaggi, J. and others.
IDIOPATHIC HYPOPROTEINEMIA WITH HYPO-GAMMA-GLOBULINEMIA. NORMO-ALDOSTERONIC EDEMA. POLYCYTHEMIA (Hypoproteinémie Idiopathique avec Hypo-Gamma-Globulinémie. Oedèmes Normo-Aldostéroniques. Polyglobulie) tr. by P. Hajdu. 28 May 59, 13p. 17 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-16642

Trans. of Société Médicale des Hôpitaux de Paris. Bulletins et Memoires (France) 1958, ser. 4, v. 74, no. 13/14, p. 308-319.

Vet, A. C. de.
HYPOTHALAMIC LESION WITH HYPOTHERMIA AND EXTENSIVE ENDOCRINE DYSFUNCTION (Hypothalamus-Laesie met Hypothermie en Uitgebreide Endrocrine Dysfunctie) tr. by P. Pallamary. 23 Mar 59, 14p.
Order from LC or SLA mi$2.40, ph$3.30 59-14549

Trans. of Nederlands Tijdschrift voor Geneeskunde, 1952, v. 96, pt. 3, p. 1842-1846.

A case history.

Wissler, H.
PAROXYSMAL MYOGLOBINURIA, tr. by Tatiana Boldyreff. 7 Apr 59, 6p.
Order from LC or SLA mi$1.80, ph$1.80 59-14876

Trans. of Helvetica Paediatrica Acta (Switzerland) 1948, v. 4, p. 334-337.

Pharmacology and Toxicology

PHARMACOLOGY AND TOXICOLOGY, 1959, VOL. 22, NO. 1, P. 1-95. 1960, 1v.
Order from CB $10.00, $25.00/year

Trans. of Farmakologiya i Toksikologiya (USSR) 1959, v. 22, no. 1, p. 3-[94].

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 1 (Soviet Abstracts. Biology). 19 Mar 60, 55p. JPRS: 2399.
Order from OTS $1.00 60-11411

Contents:
Section V. Pharmacology and Toxicology. Abstracts 4380-4766.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Jacquot, Raymond and Calet, Claude.
INFLUENCE OF CHLORTETRACYCLINE ON THE BODY COMPOSITION OF THE WHITE RAT. [1959] [5]p.
Order from SLA mi$1.80, ph$1.80 60-14089

Trans. from European Symposium on Antibiotics, 1-4, May 1953.

Maier, R., Gross, F., and Tripod, J.
RITALIN, A NEW KIND OF SYNTHETIC COMPOUND WITH SPECIFIC CENTRALLY EXCITING EFFECTIVE COMPONENTS. [1959] 20p. (6 figs. omitted) 13 refs.
Order from SLA mi$2.40, ph$3.30 60-14086

Trans. of unidentified mono. pub. by the Ciba Co., Basel, n.d.

Romanovskiy, I.
THE TRAINING OF SOLDIERS FOR DEFENSE AGAINST CHEMICAL WARFARE. 9 Mar 60, 7p. JPRS: 3045.
Order from OTS $0.50 60-31083

Trans. of Voyennyy Vestnik (USSR) 1959 [v. 39] no. 12, p. 57-61.

Trostyanskaya, Ye. B., Tevlina, A. S. and others.
PROPERTIES OF CERTAIN CATION EXCHANGE RESINS AND THEIR POSSIBLE APPLICATIONS IN THE MEDICAL AND FOOD INDUSTRIES [AND] PROPERTIES OF CERTAIN ANION EXCHANGE RESINS AND THEIR POSSIBLE APPLICATION IN MEDICINE AND IN THE FOOD INDUSTRY. 22 Jan 60, 24p. (10 figs. omitted) 14 refs. JPRS: L-921-D.
Order from OTS $0.75 59-11608

Trans. of mono. Issledovaniya v Oblasti Ionoobmennoy Khromatografii (Investigations in the Field of Ion Exchange Chromatography) Moscow, 1957, p. 117-126.

Radiobiology

Beger, Horst.
X-RAY TUBE FOR MAKING STEREOSCOPIC PHOTOGRAPHS OR FOR OBTAINING X-RAYS WITH STEREOSCOPIC EFFECT, tr. by C. P. 25 Feb 60, 3p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15550

Trans. of German patent 875975, cl. 21 g, gr. 17-10, pat. 1 Aug 41, appl. announced 31 July 52, pat. allowance announced 26 Mar 53, pub. 7 May 53 (period from 8 May 45 to 7 May 50 not counted in life of patent, law of 15 July 51) by Koch & Sterzel Aktiengesellschaft, Dusseldorf.

The tube is characterized in that it contains two incandescent cathodes and an anode rotating during the operation in such an arrangement that two focal spots will be formed on the anode at a distance apart from one another suited for stereoscopic photographs and/or X-ray photographs. The two incandescent cathodes are located in the empty space of the pot forming the anode on the inside wall of which constructed as a frustum-shaped jacket the two focal spots are produced. Each of the two incandescent cathodes has allotted to it a special electron impact surface on the anode.

Bekkum, D. W. van.
HOMOLOGOUS AND HETEROLOGOUS GRAFTS OF THE HEMATOPOIETIC SYSTEM (L'Homo et l'hétéro-Greffe du Système Hématopoiétique) tr. by P. Hajdu. 31 July 59, 55p. (11 figs. omitted) 6 refs.
Order from LC or SLA mi$3.60, ph$9.30 59-18798

Trans. of Semaine des Hôpitaux (France) 1958, v. 34, no. 13/14, p. 1083-1104 [Pathologie et Biologie (France) 1958, v. 6, no. 13/14, p. 1083-1104].

Butomo, N. V.
CHANGES IN PERMEABILITY OF VASCULAR BARRIERS FOLLOWING THE ACTION OF IONIZING RADIATION ON THE ORGANISM. 23 Feb 60, 9p. 28 refs. JPRS: 2255.
Order from OTS $0.50 60-11295

Trans. of Meditsinskaya Radiologiya (USSR) 1959, v. 4, no. 10, p. 9-13.

Gubina, G. P. and Omel'yanenko, L. M.
SOME DATA ON ECHINOPSIN ALKALOID TREATMENT OF PATIENTS FOR CHRONIC RADIATION SICKNESS. 11 Feb 60, 11p. JPRS: 2223.
Order from OTS $0.50 60-11272

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1959, v. 34, no. 5, p. 29-33.

A preparation of echinopsin is recommended for the treatment of patients with chronic radiation sickness. Indications for the use of echinopsin are forms of chronic radiation sickness: (a) with marked asthenic syndromes: (b) with the astheno-adynamic syndromes; (c) with the astheno-depressive syndromes. In chronic radiation sickness with organic damage to the central nervous system, echinopsin may be used only under conditions of hospitalization of the patients and strict supervision by a physician; the dose depends on the individual tolerance to the medication. Treatment should be initiated with small doses. With the development of neurologic disturbances in patients with chronic radiation sickness, echinopsin alkaloid facilitates a rather quick restoration of the disturbed nervous system, especially of its sensory functions. Treatment with echinopsin excludes the use of preparations possessing a general stimulatory action, because of the possibility of overstimulation of the nervous system. Poor tolerance to echinopsin is possible in patients with marked manifestations of hyperthyroidism and in patients with angiospastic crises in which there is a predominance of overstimulation of the central nervous system (possibly at the diencephalic level). Treatment with echinopsin may be combined with treatment which includes vitamins (C, P, K) and preparations causing stimulation of hematopoiesis. (Author)

Hajdukovic, S. and Stosie, Lj.
INFLUENCE OF X-RAYS ON THE RETICULOCYTE REACTION OF YOUNG RATS. 10 Sep 58, 10p. 21 refs. JPRS(DC)-L-672.
Order from OTS $0.50 PB 141 162T

Trans. of Vojnosanitetski Pregled (Yugoslavia) 1957, [v. 14] no. 9, p. 279-283.

Kalashnikov, A. I., Samoletov, A. I. and others.
EXPERIMENT WITH SMALL DOSES OF RADIOACTIVE RADIATION IN THE INCUBATION OF CHICKS (Opyt Ispol'zovaniya Malykh doz Radioaktivnykh Izluchenii pri Inkubatsii). [1959] 9p. (summaries omitted). Trans. A-1092.
Order from LC or SLA mi$1.80, ph$1.80 60-15352

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 8, p. 47-50.

Khomutovskiy, O. A.
ELIMINATION OF RADIOACTIVE STRONTIUM FROM THE ORGANISM UNDER THE INFLUENCE OF CERTAIN COMPLEX-FORMING COMPOUNDS. 16 Feb 60, 15p. 11 refs. JPRS: 2256.
Order from OTS $0.50 60-11275

Trans. of Fiziologichnyy Zhurnal (USSR) 1959, v. 5, no. 5, p. 670-678.

The process of excreting Sr^{89} after oral administration was investigated in 24 rats, and its distribution in the organs and tissues in 44 rats. Observations of the excretion of the isotope were continued for five

days. The absorption of the sodium salt of radioactive strontium from the gastrointestinal tract was 54 to 58 percent of the administered dose. The maximum content of the isotope in the soft tissues was reached in two hours, and in the bones in eight hours. The total amount of Sr^{89} in the osseous tissue upon giving the isotope orally was two times, and in the soft tissues ten times, less than with intraperitoneal administration. With oral administration of Sr^{89} to rats, 60 to 76 percent of the administered dose is excreted in five days in the urine and feces, which is twice as much as when it is given intraperitoneally. Prevention of absorption of Sr^{89} from the gastrointestinal tract during the course of the first two hours may be achieved with the use of substances which combine with Sr^{89} to form insoluble compounds. With the administration of oxalic acid orally in doses of 0.15 to 0.18 mg per gm body weight within an hour after the oral administration of Sr^{89}, the content of the isotope in the femoral bones of experimental rats is only half that found in control rats.

Mellink, J. H.
THE USE OF CO^{60} AND CS^{137} IN TELECURIE THERAPY. 22 Jan 60, 41p. (6 figs. omitted) 22 refs. JPRS: L-1022-D.
Order from OTS $1.25 59-11633

Trans. of Atompraxis (West Germany) 1958, v. 4, no. 6, p. 212-227.

Wang, Shao-hsun.
COMMUNIST CHINA'S ACHIEVEMENT IN CLINICAL RADIOLOGY DURING THE PAST DECADE.
23 Feb 60, 34p. JPRS: 2282.
Order from OTS $1.00 60-11322

Trans. of Chung Hua Fang She Hsüeh Tsa Chih (Chinese People's Republic) 1959, v. 7, no. 5, p. 317-326.

Wang, Shih-chen and Yeh, Ken-yao.
PROGRESS IN THE USE OF RADIOISOTOPES IN THE FIELD OF MEDICINE SINCE LIBERATION.
23 Feb 60, 26p. 11 refs. JPRS: 2280.
Order from OTS $0.75 60-11321

Trans. of Chung Hua Fang She Hsüeh Tsa Chih (Chinese People's Republic) 1959, v. 7, no. 5, p. 327-333.

Zuikova, Ye. Z., Chaykovskaya, M. Ya., and Petrosyan, S. L.
THE EFFECT OF IONIZING RADIATION ON PROGENY FOLLOWING IRRADIATION OF ANIMALS DURING THE LAST DAYS OF PREGNANCY.
11 Feb 60, 12p. 11 refs. JPRS: 2224.
Order from OTS $0.50 60-11273

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1959, v. 34, no. 5, p. 34-41.

Zoology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) (Soviet Abstracts. Biology).
Order from OTS $1.00

Contents:
Section G. Zooparasitology. Abstracts 62573-62707.
1958, no. 14, Abstracts 62573-62707, JPRS: 2336, 60-11361
1959, no. 2, Abstracts 5668-5760, JPRS: 2345, 60-11368

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Balashov, Yu. S.
NUTRITION AND COURSE OF SPERMATOGENESIS ON MALE IXODID TICKS. [1959] 5p. (4 figs. omitted) 8 refs. Trans. 21(T21).
Order from LC or SLA mi$1.80, ph$1.80 60-10997

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1956, v. 110, no. 6, p. 1133-1136.

Balashov, Yu. S.
PECULIARITIES OF THE DAILY RHYTHM OF DROPPING OF ENGORGED FEMALE IXODES PERSULCATUS FROM CATTLE (Osobennosti Sutochnogo Ritma Otpadeniya Nasosavshikhsia Samok Ixodes persulcatus s Korov), [1959] [5]p. 3 refs. Trans. 20(T20).
Order from LC or SLA mi$1.80, ph$1.80 60-10998

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1954, v. 98, no. 2, p. 317-319.
Another translation is available from SLA as RT-3736.

Gusev, A. V.
EXPEDITION TO THE LIAO HO. 16 Feb 60, 6p. JPRS: 2265.
Order from OTS $0.50 60-11292

Trans. of Akademiya Nauk SSSR. Vestnik, 1959 [v. 29] no. 9, p. 87-89.

Kheysin, E. M. and Lavrenenko, L. E.
DURATION OF BLOOD-SUCKING AND DIURNAL RHYTHM OF NUTRITION AND DROPPING OF FEMALES OF IXODES RICINUS L. [1960] 9p. 15 refs. Trans. 24 (T24).
Order from LC or SLA mi$1.80, ph$1.80 60-14036

Trans. of Zool[ogicheskiy] Zh[urnal] (USSR) 1956, v. 35, no. 3, p. 379-383.

Observations showed that dropping of engorged females of Ixodes ricinus from the host occurs only

in the pasture. During normal practice of the host (rest during the night), the ticks drop off during the day but during reverse practice of the host (rest during the day), the ticks drop during the night. Dropping of engorged females is connected with the movement of the animal and begins a few hours after the animals were driven to pasture. During rest of the host in the cattle-yard, the ticks, as a rule, do not drop off. Dropping of completely engorged females may be delayed for as many days as the cows remain in the cattle-yard, i.e., in a state of rest. Dropping of females occurs on the 7th to 8th day (each day 24 hours) after attachment. During normal diurnal routine of the host, the engorged females, ready to drop in the morning before the animals are driven off to pasture, is constantly observed. This is connected with the rhythm of nutrition of the tick. In 6 days of bloodsucking, the weight of female ticks increased 55, 5 mg. and in the last night of intensive bloodsucking the weight of the tick increased on an average up to 200 mg.; that is why females reach maximum weight in the morning.

Kobayashi, Tetsuo and Abe, Shin-ichi.
ON THE IDENTIFICATION OF CHUM SALMON STOCKS IN THE NORTH PACIFIC BY MEANS OF SCALES (PT. I) tr. by Hack Chin Kim. 17 Oct 58 [35]p. (11 figs. omitted) 22 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-18361

Trans. of I[nternational] N[orth] P[acific] F[isheries] C[ommission] Doc[ument] 207, Hokkaido, Aug 58, 36p.

The problem of the race and stocks of chum salmon in the North Pacific is discussed on the basis of the age-composition of the fish in 1955 and 1956 in offshore areas, Alaska inshore areas and rivers, and on the basis of the scale types of the 4-year-old and 5-year-old fish. (See also 60-15538)

Kuipers, H.
LOCALIZATION OF GLYCOGEN IN THE FIRST DEVELOPMENTAL STAGES OF AMBYSTOMA MEXICANUM (Over de Localisatie van het Glycogeen in de Eerste Ontwikkelingsstadia van Amblystoma Mexicanum) tr. by P. Pallamary. 27 Feb 59, 8p. 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-14239

Trans. of Nederlands Tijdschrift voor Geneeskunde, 1930, v. 74, p. 1156-1158.

A lecture.

Luh, Pao-Ling and Woo, Wei-Chu.
A LIST OF CHINESE TICKS. [1960] 29p. 122 refs. Trans. 19(T19).
Order from LC or SLA mi$2.70, ph$4.80 60-14034

Trans. of [K'un Ch'ung Hsueh Pao] (Chinese People's Republic) 1950, v. 1, no. 2, p. 195-222.

Serdyukova, G. V.
ON THE QUESTION OF DIFFERENTIAL CHARACTERISTICS OF LARVAE AND NYMPHS OF IXODIDAE, tr. by Alena Elbl. [1960] [15]p. (20 figs. omitted) 19 refs. Trans. 18 (T18).
Order from LC or SLA mi$2.40, ph$3.30 60-14037

Trans. of Zool[ogicheskiy] Zhurnal (USSR) 1955, v. 34, no. 5, p. 1037-1051.

Yokogawa, Muneo, Oshima, Tomoo and Kihata, Michie.
STUDIES TO MAINTAIN EXCYSTED METACERCARIAE OF PARAGONIMUS WESTERMANI IN VITRO. I. SURVIVAL PERIOD OF EXCYSTED METACERCARIAE IN VITRO, tr. by W. Himel. 4 Mar 59, 17p. (4 figs. omitted) 15 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-14279

Trans. of Kiseichugaku Zasshi (Japan) 1955, v. 4, no. 4, p. 388-393.

Three excysted metacercariae of Paragonimus westermani were maintained in vitro for 202 days. From an average length of about 0.6 mm and a width of 0.26 mm at rest immediately after excystation, these forms had grown to 2.5 or 3.0 mm in length and 1.5 to 2.0 mm in width at rest; stretched, they reached up to 6 or 7 mm long. Signs of beginning development of the male reproductive system, especially of the testes, are being observed. Some 107 excysted metacercariae were used to start the cultures. Carrel flasks were employed, and the cultures were incubated at 37° C and kept as sterile as possible by including the use of antibiotics. The medium used for the first three weeks after excystation consisted of equal parts of cat serum and Tyrode's solution. Chick Embryo Extract and cat blood cells were added to the medium of one-third of the cultures, and cat blood cells only were added to another third of the cultures after that time. All of the larvae in the media without both blood cells and C. E. E. died within 4 weeks, but none of the worms in the media with both cat blood cells and C. E. E. and in the media with blood cells only died. The red blood cells and C. E. E. seem to be the important requirements for maintaining the larvae. It was observed that the red blood cells were ingested and that the digested red blood cells were excreted. (Author) (See also 59-14242)

CHEMISTRY

*AKADEMIYA NAUK SSSR. OTDELENIYE KHIMICHESKIKH NAUK. IZVESTIYA, 1959 (News of the Academy of Sciences of the USSR, Department of Chemical Sciences). [1960]
Order from OTS $0.70, $4.00/6 mo.
Foreign $0.95, $5.50/6 mo.

No. 10, p. 1699-1870, PB 141 055T-24
No. 11, p. 1875-2063, PB 141 055T-23

Consists of abstracts in English.

REFERATIVNYY ZHURNAL. KHIMIYA (USSR) 1959, (Soviet Abstracts. Chemistry).
Order from OTS $3.50

No. 19, abstracts 67005-70193, JPRS: 2406, 60-11414
No. 21, abstracts 73808-77261, JPRS: 2409, 60-11417

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia, excluding the USSR.

*ZHURNAL OBSHCHEY KHIMII (USSR) 1959, V. 29, NO. 12, P. 3857-4099 (Journal of General Chemistry). [1960] 1v. SOV-79-29-12-(1-55)/55.
Order from OTS $1.40, $7.50/6 mo. PB 141 075T-25
Foreign $1.65, $9.00/6 mo.

Consists of abstracts in English.

Berlin, A. A., Makarova, T. A., and Rodyonova, E. F.
METHODS OF PREPARATION OF RESIN COMPOSITIONS. [1959] 2p.
Order from ATS $5.00 ATS-72M37R

Trans. of Russian patent 123,311, cl. 39b, 401. 22i, 2, filed 9 Aug 50 under no. 425,885/23.

Yakhontov, L. N., Kolpakhova, V. V. and others.
ON SCIENTIFIC RESEARCH WORK IN THE INSTITUTES OF THE REPUBLIC OF CZECHOSLOVAKIA [PT. 1]. 8 Feb 60, 8p. JPRS: 2218-N.
Order from OTS $0.50 60-11266

Trans. of Meditsinskaya Promyshlennost' SSSR, 1959, v. 13, no. 11, p. 55-58.

Analytical Chemistry

*ZHURNAL ANALITICHESKOY KHIMII (USSR) 1959, V. 14, NO. 6, P. 643-750 (Journal of Analytical Chemistry). [1960] 1v. SOV-75-14-6-(1-25)/25.
Order from OTS $0.90, $5.25/year PB 141 071T-12
Foreign $1.15, $6.75/year

Consists of abstracts in English.

Bemmann, R[udolf].
REMOVING OIL FROM PHENOSOLVAN EXTRACTS; THE PRINCIPLE OF THE SODA PROCESS. [1959] 11p. (1 fig. omitted).
Order from SLA mi$2.40, ph$3.30 60-10788

Partial trans. (p. 98-104) of Freiberger Forschungshefte. [Reihe] A. [Bergbau] (West Germany) 1956, no. 51, Oct, p. 89-108.

Farina, M., Donati, M., and Ragazzini, M.
POTENTIOMETRIC ANALYSES OF ALKYL ALUMINUM COMPOUNDS. [1959] [12]p. 5 refs.
Order from SLA mi$2.40, ph$3.30 60-14148

Trans. of Ann[ali di] Chim[ica] (Italy) 1958, v. 48 [no. 6/7] p. 501-509.

The scientific and practical interest shown recently in the aluminum alkyl compounds, because of their utilization as components of polymerization catalysts, has given rise to a real problem with respect to the accurate analysis of such compounds. In the present work we are reporting a potentiometric method of titration based on the addition of ethers and substituted amines, in particular isoquinoline. This method combines remarkable precision in analysis with relative facility of operation. Examined is the behavior of the various substances normally present, in addition to the aluminum trialkyls such as the mono-alcoholates, the mono- and dihalides, the monohydrides and the aluminum alkyl etherates. In addition there is determination of the effect, on titration, of the moisture contained in the solvents and in their reagents. (Author)

Fedorov, B. P. and Gorushkina, G. I.
THE SIMULTANEOUS DETERMINATION OF THIOPHENE OR ITS SIMPLEST HOMOLOGS IN MIXTURES WITH UNSATURATED HYDROCARBONS. [1959] 10p.
Order from ATS $14.95 ATS-00M38R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv [i Masel] (USSR) 1956 [v. 1] no. 12, p. 5-12.

Fuchs, O.
THE FRACTIONATION OF HIGH POLYMERS BY A SOLUTION PROCESS. [1959] 14p. 8 refs.
Order from SLA mi$2.40, ph$3.30 60-14122

Trans. of Makromolekulare Chemie (Switzerland) 1952, v. 7, p. 259-270.

Fuchs, O.
A METHOD OF FRACTIONATING HIGH POLYMERS. [1959] 10p. (1 table 2 figs. omitted) 3 refs.
Order from SLA mi$1.80, ph$1.80 60-14121

Partial trans. (p. 248-55) of Makromolekulare Chemie (Switzerland) 1951, v. 5 [p. 245-256].

Istomina, K. Ye.
COMPARATIVE EVALUATION OF METHODS OF DETERMINING OIL IN WATER AND CONDENSATE. [1960] 7p.
Order from ATS $11.95 ATS-24L31R

Trans. of Gosudarst[vennyy] Nauch[no]-Issledovatel-['skiy] i Proyekt[nyy] Inst[itut] Azotnoy Prom[yshlennosti]. Trudy (USSR) 1957, no. 8, p. 248-254.

Lavrovskaya, G. K., Skurat, V. E. and others.
THE APPLICATION OF MASS SPECTROSCOPY TO CHEMICAL ANALYSIS. [1959] 17p.
Order from ATS $28.25 ATS-21L37R

Trans. of Khim[icheskaya] Nauka i Prom[yshlennost'] (USSR) 1959, v. 4, no. 2, p. 154-163.

Nasini, A. and Mussa, C.
FRACTIONATION OF HIGH PRESSURE POLYETHYLENES. [1959] 34p. (9 figs. omitted) 23 refs.
Order from SLA mi$3.00, ph$6.30 60-14117

Trans. of Makromolekulare Chemie (Switzerland) [1957, v. 22, p. 59-80].

Schlfer, Hans-Georg.
CONTRIBUTIONS TO THE KNOWLEDGE OF COAL-TAR PITCH. [1959] 55p. (12 figs. omitted) 62 refs.
Order from LC or SLA mi$3.60, ph$9.30 59-22341

Trans. of Freiberger Forschungshefte. Reihe A. [Bergbau] (West Germany) 1956, no. 51, p. 35-65.

A survey lecture.

Stolyarov, K. P.
IODIMETRY IN ULTRA-VIOLET LIGHT (Iodometriya v Ul'trafioletovykh Luchakh) tr. by E. Feigl. [1959] [21]p. 8 refs. Trans. no. 4273.
Order from LC or SLA mi$2.70, ph$4.80 60-15381

Trans. of Leningrad U. Uchenyye Zapiski (USSR) 1957, no. 211, p. 92-[103] Seriya Khimicheskikh Nauk no. 15.

Methods are suggested for determining the end point without the use of an indicator (starch) in (1) iodimetric titrations of iodine, iodates, bromates, sulphites, thiosulphates, hydrogen peroxide, strong mineral acids and oxalic acid in ultra-violet light, and (2) iodimetric determinations of arsenic, chromium, iron, copper, barium and lead in ultra-violet light. It is shown that sodium thiosulphate may, in several iodimetric determinations, be conveniently replaced by ascorbic acid for titrating iodine.

Organic Chemistry

PROCESS FOR MANUFACTURING VINYL CHLORIDE-ACRYLONITRILE COPOLYMERS OF HIGH SOFTENING POINTS. Feb 60, 5p.
Order from RIS $6.75 RIS rept. 6412

Trans. of German patent application C 11 630 (39c, 25/01) DAS 1 002 526, filed 30 July 55, pub. 14 Feb 57, by Chemische Werke Huels A. G., Marl.

A process for manufacturing copolymers from vinyl chloride and acrylonitrile of high softening point is described, which is characterized in that 50 to 70% of the monomeric vinyl chloride is polymerized first, then monomeric acrylonitrile is added in amounts of 18 to 25% relative to total monomer, and the polymerization is carried to completion.

PROCESS FOR MULTISTAGE CURING OF EPOXY RESINS. Feb 60, 6p. 1 ref.
Order from RIS $10.00 RIS rept. 61062

Trans. of German patent application V 13 720 (39 b, 22/10) [DAS] 1 054 705, filed 20 Jan 58, appl. pub. 9 Apr 59, pat. pub. 24 Sep 59, by VEB Leuna-Werke "Walter Ulbricht", Leuna.

A process is described for curing epoxy resins, in several stages if necessary, with acid or neutral, possibly polymeric, esters of aliphatic and cycloaliphatic monovalent and multivalent alcohols and polybasic carboxylic acids in the presence of metal oxides with heating. The process is characterized in that the metal oxides used are such as have several valencies and have not attained to the higher degree of oxidation, with the condition that the ions of the metals of both oxidation stages must form a positive redox potential of over 1 volt. The melt of a solid epoxy resin is heated with the mixture formed during heating of the ester and the metal oxide.

PROCESS FOR PRODUCING POLYESTERS OF POLYBASIC CARBOXYLIC ACIDS. Feb 60, 8p.
Order from RIS $14.00 RIS rept. 61063

Trans. of German patent application B 34 505 (39 c, 16) DAS 1 055 812, filed 14 Feb 55, pub. 23 Apr 59, by Bergwerksverband G. m. b. H., Essen-Kray.

A process is described for producing polyesters from tribasic and higher basic carboxylic acids, especially pyromellitic acid, its mixtures or anhydrides. The process is characterized in that these are partially esterified with at least one monovalent alcohol in a conventional manner and the resulting acid ester converted in conventional manner with epoxy compounds, possibly with the condensation into the product of monovalent or divalent carboxylic acids. Carboxylic acid mixtures are used, which are obtained from the oxidation of solid fuels with nitric acid at elevated pressure.

PROCESS FOR PRODUCING SHOCK RESISTANT POLYSTRENE. Feb 60, 9p.
Order from RIS $19.50 RIS rept. 61061

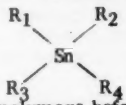
Trans. of German patent application C 16 481 (39c, 25/01) DAS 1 059 179, filed 14 Mar 58, pub. 11 June 11 June 59, by Chemische Werke Huels A. G., Marl.

A process is described for producing shock resistant polystyrene through suspension polymerization of solutions of rubber in styrene in the absence of oxygen. The process is characterized in that water soluble organic colloids are used as suspension agents.

PROCESS FOR STABILIZING VINYL CHLORIDE AND VINYLIDENE CHLORIDE POLYMERS. Feb 60, 7p.
Order from RIS $13.00 RIS rept. 6114

Trans. of German patent application F 5384 (39b, 22/06) filed 10 Jan 51, pub. 23 Oct 52, by Farbwerke Hoechst A. G., Frankfurt-Hoechst.

A process is described for preparing heat and light-resistant polymers of halogen-containing ethylene derivatives, vinyl esters, or copolymers of these or with other monomers. The process is characterized in that organic tin compounds having the structure



are added to the polymers before, during or after their preparation. Here R_1 and R_2 represent aryl or alkyl residues, and R_3 and R_4 represent residues of this type of which at least one exercises a stabilizing effect itself or in the form of a salt.

Adrova, N. A., Koton, M. M. and others.
THE RELATION BETWEEN THE CHEMICAL STRUCTURE OF CARBOCYCLIC AND HETEROCYCLIC COMPOUNDS AND THEIR SCINTILLATING ACTIVITY (O Svyazi Mezhdu Khimicheskim Stroyeniyem Karbo- i Geterotsiklicheskikh Soyedinenii i Ikh Stsintillyatsionnoy Aktivnostyu).
Apr 58, 5p. 19 refs. C. T. S. no. 451.
Order from LC or SLA mi$1.80, ph$1.80 60-13047

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 114, no. 2, p. 311-313.

The scintillating activity of substituted anthracenes, polyphenols, aryl derivatives of dienes, and a series of heterocyclic compounds (69 compounds in all) was studied after introducing them into a plastic mass (polystyrene). These substances were introduced into styrene monomer in amounts corresponding to their maximum efficiency (1 or 2 wt percent) and the styrene was polymerized in presence of 0.2 percent of benzoyl peroxide with gradual raising of the temperature from 80 to 120° in the course of 4 or 5 days until transparent solid blocks were obtained. The latter were shaped into cylindrical form. These cylinders were examined for scintillating efficiency in an apparatus for determination of the relative magnitude of the voltage peak at the output side of a photoelectron multiplier (FEU - 19). The peak of a standard sample (2 percent of terphenyl in polystyrene was taken to be 100 percent when the counting level was 1000 pulses/min. The compounds possessing the highest activity in plastics were 1, 4-di- [2-(5-phenyloxazolyl)-benzene], quaterphenyl, and 9, 10-diphenylanthracene, i.e., hydrocarbons whose molecules contain 4 or 5 rings and conjugated double bonds. In a series of oxazoles and oxadiazoles possessing a high scintillating activity, the latter depends to a considerable degree upon the nature of the substituent in the 2, 5-position. With identical substituents (phenyl), derivatives of oxazoles possess a higher scintillating activity than derivatives of oxadiazoles. These data are in close harmony with those of Hayes et al. (Nucleonics 13: 38, 1955 and 14: 42, 1956) which were obtained in a study of liquid scintillators. There is similarly a relation between the chemical structure and the scintillating activity of a group of hydrocarbons with three condensed nuclei and differing from one another in respect of ring structure, number of conjugations and presence of various heterocycles (O, S, NH). Anthracene is more active than phenanthrene, and acenaphthene; dibenzofuran more active than dibenzothiophene, and dibenzopyrrole. These results are in agreement with those of Sangster and Irvine (Phys. Rev. 83: 241, 1951 and J. Chem. Phys. 24: 670, 1956), which were based on a study of the scintillating efficiency of these substances in the crystalline state.

Andreyev, L. N., Krentsel', B. A. and others.
THE USE OF RADIATION TO PREPARE AN ACRYLONITRILE-PROPYLENE COPOLYMER. [1959] 1p.
Order from ATS $2.00 ATS-94M37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 8, p. 1507.

Borisov, A. E. and Novikova, N. V.
EXCHANGE REACTION OF ORGANOTIN COMPOUNDS WITH THALLIUM TRICHLORIDE. [1959] 4p.
Order from ATS $6.00 ATS-38M38R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 9, p. 1670-1672.

Previous investigations are continued by studying the reaction between tetraethyl-, butyl-, phenyl-, o- and p-tolyl-, o-anisyl, the stereoisomeric propenyl-, isopropenyl-, and vinyl compounds of tin with thallium (III) chloride. The initial substances were obtained by the Grignard reaction, stereoisomeric tetrapropenyl- and isotetrapropenyl tin being prepared for the first time. All compounds reacted smoothly with $TlCl_3$ in ether or chloroform solution at room temperature. Initial substances and reaction products are tabulated. The cis- and trans-tetrapropenyl compounds immediately form R_2TlCl, the others form mixtures of R_2TlCl and $RTlCl_2$. The phenyl compounds yield compounds of the latter type only. The tetraethyl and tetrabutyl compounds gave no exchange reaction. Only compounds of the type $Tl_3(TlCl_6)$, as well as ethyltin chloride and butyltin chloride were precipitated. The physical constants of some of the thallium compounds obtained are tabulated. (See also 59-18920, 60-10987)

Braz, G. I. and Gortinskaya, T. V.
ACRIDYL-9-(ω -HALOGENMETHYLKETONES) tr. by P. V. DePorte. 10 Dec 59, 17p. (formulae omitted) 28 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-13138

Trans. of Zhurnal Obshchey Khimii (USSR) 1940, v. 10 [no. 19/20] p. 1751-1756.
Another translation is available from SLA as RT-1378.

Bredereck, Hellmut; Gompper, Rudolf and others.
FORMAMIDE REACTIONS. XIV. REACTIONS OF ACID AMIDE ACYLHALOGENIDE ADDUCTS; THE PRODUCTION OF SUBSTITUTED AMIDINES AND AMIDE RACONES. [1959] 21p. (6 formulas 1 graph omitted) 21 refs.
Order from SLA mi$2.70, ph$4.80 60-14070

Trans. of Chem[ische] Ber[ichte] (West Germany) 1959, v. 92 [no. 4] p. 837-849.
Another translation is available from ATS $20.95 as ATS-66L33G [1959] 15p. and a partial translation from SLA mi$2.40, ph$3.30 as 59-17498 [1959] [14]p.

The structure of the dimethylformamide phosphoroxychloride adduct, which is obtained in crystalline form, is discussed. N, N-disubstituted amides give N, N, N'-trisubstituted amidines with phosphoroxychloride and amines. The reaction of the dimethylformamide phosphoroxychloride adduct with hydrazines leads to the previously unknown formyl formamidazones. N, N'-disubstituted formamidines are produced through reaction of formanilides with alkylating agents. (Author)

D'yachkovskiy, F. S., Bubnov, N. N., and Shilov, A. Ye.
STUDY OF THE RECOMBINATION KINETICS OF TRIPHENYLMETHYL RADICALS BY MEANS OF ELECTRON PARAMAGNETIC RESONANCE [Izucheniye Kinetiki Rekombinatsii Trifenilmetil'nykh Radikalov Metodom Elektronnogo Paramagnitnogo Rezonansa] [1959] [3]p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-10907

Trans. of Akad[emiya] Nauk SSSR. Doklady 1958, v. 122, no. 4, p. 629-631.
Another translation is available from CB.

As a result of direct determination of the dimerization rate of triphenylmethyl radicals, the presence of an activation energy in this reaction was confirmed, its value coinciding with the difference between the activation energy of dissociation and the energy of breaking of bond C-C in hexaphenylethane.

Grachev, I. V.
TO THE PROBLEM OF THE STRUCTURE AND TRANSFORMATIONS OF DIAZO COMPOUNDS. II. ON THE VARIOUS FORMS OF p-NITRODIAZOBENZENE. [1959] [12]p. 11 refs. M 184.
Order from LC or SLA mi$2.40, ph$3.30 59-19078

Trans. of unidentified Russian mono. from the Institute of Applied Chemistry.

The existence of the following salts of p-nitrodiazobenzene has been shown: diazonium chloride, the sodium salts of the diazotate and nitrosamine, and, for the first time, of the diazonium salts of the same acids. The hitherto unknown dissociation constant, and the constants and degrees of hydrolysis of some of the structures of p-nitrodiazobenzene have been determined. In agreement with the data found in the literature, p-nitrophenylnitrosamine is found to be an acid of considerably greater strength than the diazotate. Of all the salts studied by us the greatest extent of hydrolysis is shown by the diazonium diazotate, which forms the amphoteric, weakly dissociated diazohydroxide. Hydrolysis of p-nitrophenyldiazonium chloride with the formation of diazonium diazotate and further to the diazohydroxide is slight, although this diazocompound is known to be active in the coupling reaction (hence, contrary to present opinion, the activity in the coupling reaction cannot be a measure of the degree of hydrolysis of the diazonium chloride). The change in the quantitative ratios of the various forms of diazocompound with the pH value of the medium was determined. In the range of pH 8-9 the concentration of the p-nitrophenyldiazonium cation rapidly decreases (by a factor of 40), though even in the alkaline region a definite, though small, quantity of this form remains owing to the hydrolysis of sodium diazotate. (Author) (See also 59-19072)

Hosaka, Yoshinobu and Takehisa, Masaaki.
EFFECTS OF REACTION CONDITIONS UPON THE DIPHENYL SYNTHESIS FROM BENZENE UNDER ADDED PRESSURE. Rept. 1 of Study on the Diphenyl Synthesis from Benzene under Added Pressure. [1960] [12]p. 8 refs.
Order from SLA mi$2.40, ph$3.30 60-14142

Trans. of Kogyo Kagaku Zasshi (Japan) 1955, v. 58, no. 12, p. 1001-1004.

Experiments showed that the conversion rates of benzene to diphenyl and triphenyl decrease in proportion to the minus 0.7th to minus 0.3rd power of the space velocity and the minus first power of the space velocity. The reaction speed is in proportion to the second power of the reaction pressure; and the main reaction is a secondary uniform system reaction. For the same conversion rates of benzene, the rates of conversion of benzene to diphenyl and triphenyl are the same irrespective of the temperature for the reaction. It is also possible to lower the temperature for reaction by approximately 100 degrees centigrade as compared with the normal pressure method. There are two kinds of educed carbon, each having its own reason for coming into existence; one is soot-like carbon and the other is pitch-like carbon, and it is possible to decrease the amount of the soot-like carbon produced by the contact decomposition of benzene under the added pressure method. A lecture given to the 7th annual meeting of the Chemical Society of Japan in April, 1954.

Khalizova, O. D. and Vorontsova, E. I.
SOME PROPERTIES OF DICHLORODIFLUOROMETHANE (FREON 12) AND A METHOD OF ITS DETERMINATION. [1959] 5p.
Order from ATS $8.50 ATS-13M38R

Trans. of Gigiyena i Sanit[ariya] (USSR) 1952, v. 17, no. 4, p. 44-46.

Khomyakov, V. G., Floshin, M. Ya., and Kruglikov, S. S.
ELECTROCHEMICAL SYNTHESIS OF ORGANIC SUBSTANCES. [1959] 15p.
Order from ATS $19.85 ATS-92M37R

Trans. of Khim[icheskaya] Nauki i Prom[yshlennost'] (USSR) 1958, v. 3, p. 432-438.

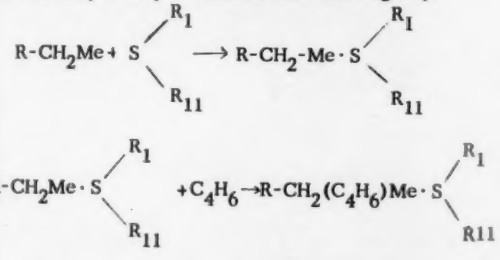
Köster, R.
SIMPLE SYNTHESIS OF RING SHAPED BORON TRIALKYLS. 8 Jan 60, 2p. 5 refs.
Order from SLA mi$1.80, ph$1.80 60-10994

Trans. of Angew[ante] Chem[ie] (West Germany) 1959, v. 71 [no. 15/16] p. 520.

Kropachev, V. A., Dolgoplosk, B. A., and Nikolayev, N. I.
COMPLEX FORMATION AND CHAIN STRUCTURE DURING THE POLYMERIZATION OF DIVINYL BY MEANS OF LITHIUM BUTYL (Kompleksoobrazovaniye i Struktura Tsepi pri Polimerizatsii Divinila Litiibutilom). July 58, 4p. 6 refs. C. T. S. no. 477.
Order from LC or SLA mi$1.80, ph$1.80 60-13317

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 115, no. 3, p. 516-517.

In order to clarify the influence of the oxidation products on the chain structure in the polymerization of butadiene it was necessary to investigate the influence of oxygen. It was established that in the polymerization of the divinyl by organic compounds of lithium an introduction of relatively small quantities of oxygen into the system results in a considerable increase in the number of 1, 2 links in polybutadiene at the expense of the reduction of the number of 1, 4 links. The addition of alcohol and phenol shows similar influence on the structure of the polymer-chain. The data obtained, point to the necessity of protecting the system from the introduction of oxygen when synthesising divinyl polymers with the maximum content of 1, 4 links in the chain. The influence of oxygen on the structure of polybutadiene is, apparently, due to the formation of oxygen-containing products which form complexes with the organic compounds of lithium. A similar effect is produced by dialkylmonosulphides. Experimental data obtained from the polymerization of butadiene by lithiumbutyl in the presence of dialkylsulphides showed that they increase considerably the number of 1, 2 links in the chain. In the case of dimethylsulphide the content of 1, 2 links is increased from 12 percent to 86 percent. The influence of dialkylsulphide decreases as the alkyl radical becomes larger. The influence of the complex-forming additions can be represented by using Ziegler's representation of the polymerization process as a successive metallo-organic synthesis. In the given case the scheme may be represented in the following way:



Lynen, F., Eggerer, H. and others.
FARNESYL-PYROPHOSPHATE AND 3-METHYL-Δ^3-BUTENYL-1-PYROPHOSPHATE, THE BIOLOGICAL PRECURSORS OF SQUALENE. III. THE BIOSYNTHESIS OF THE TERPENES (Farnesyl-Pyrophosphat und 3-Methyl-Δ^3-Butenyl-1-Pyrophosphat, die Biologischen Vorstufen des Squalens. III. [Die Biosynthese der Terpenes]) tr. by William H. Everhardy. 29 Jan 59, 18p. (1 fig. 1 diagr. omitted) 38 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-12913

Trans. of Angewandte Chemie (West Germany) 1958, v. 70, p. 738-742.

Acellular yeast extracts transform tagged mevalonic acid into squalene. A report is given on experiments in which two new intermediate products could be isolated and identified as isopentenyl pyrophosphate and farnesyl pyrophosphate. The preparative synthesis of isopentenyl pyrophosphate is described, and its biological conversion into farnesyl pyrophosphate and squalene is discussed. The tagged compound could be incorporated in cholesterol and rubber with enzymes of other origin and was proved by this to be the universal building block of the natural substances falling under the "isoprene rule." (Author)

Moraglio, P.
THE VISCOMETRIC DETERMINATION OF THE AVERAGE MOLECULAR WEIGHT OF ETHYLENE-PROPYLENE COPOLYMERS. [1959] [10]p. 15 refs.
Order from SLA mi$1.80, ph$1.80 60-14210

Trans. of [Ia] Chimica e l'Industria (Italy) 1959, v. 41, no. 10, p. 984-987.

The Flory-Stockmayer theory is applied to ethylene-propylene copolymers with the object of determining the constants K' and a, in the relation $[\eta] = K' \cdot M^a$ for various compositions. The constants thus found allow us to compute approximately, but with sufficient precision for technical purposes, the viscosimetric molecular weight M_V for this type of copolymer. (Author)

Nazarov, I. N. and Semenovskiy, A. V.
THE PREPARATION OF AROMATIC ACIDS BY OXIDATION OF THE SIDE CHAINS IN AROMATIC COMPOUNDS BY NITRIC ACID, II. [1959] 5p.
Order from ATS $9.40 ATS-81M37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1957, no. 9, p. 1101-1104.

Okawara, M[akoto].
STUDIES ON PROPYLENE CHLOROHYDRIN AND PROPYLENE OXIDE. PTS. III-IV. REACTIONS OF PROPYLENE OXIDE WITH HYDROXY COMPOUNDS; THE SYNTHESIS OF PHENOXYPROPANOLS, 1; THE SYNTHESIS OF PROPYLENE GLYCOL MONOETHERS AND THEIR PROPERTIES, 2. [1959] [17]p. 2 refs.
Order from SLA mi$2.40, ph$3.30 60-14139

Trans. of [Kogyo Kagaku Zasshi] (Japan) 1952, v. 55 [no. 4] p. 219-221 and [no. 5] p. 273-275.

Pt. III: An improved method is described for synthesizing phenoxypropanol (FP), both at high and at atmospheric pressures, in the presence of a caustic alkali catalyst. The highest yield obtained was 98%, which makes production profitable. Two isomers were found in the FP. (Paper presented at the Tokai district meeting of the Chemical Society of Japan, November 1951). Pt. IV: When a large excess of oxide is allowed to react with phenols, polypropylene glycol monoethers are formed, rather than the compounds described in part III.

$$C_6H_5OH + n\cdot CH_2\text{-}\underset{\diagdown O \diagup}{CH}\text{-}CH_3 \rightarrow C_6H_5O(CH_2\overset{CH_3}{\overset{|}{C}}HO)_n.H$$

The products of the reactions involving phenols or higher alcohols and an excess of ethylene oxide have been recognized as excellent surface active agents, while the reaction product with propylene oxide has not been studied in detail thus far. The author studied the reaction of an excess of propylene oxide with phenols, alcohols, organic acids or amines, and investigated the surface active properties of the reaction products. The product $C_6H_{11}OCH_2CH(OH)CH_3$ of the reaction between cyclohexanol and propylene oxide gave an ester that had a high boiling point, a low setting point (?), and showed promise as a plasticizer. (Author)

Plazek, E. and Tyka, R.
THE PREPARATION OF TRIBENZOYL PHOSPHIDE. [1959] 2p.
Order from ATS $3.50 ATS-75M37P

Trans. of Roczniki Chem[ii] (Poland) 1959, v. 33, p. 549-550.

Poray-Koshits, A. and Grachev, I. V.
TO THE PROBLEM OF THE TRANSFORMATIONS OF DIAZO COMPOUNDS, I. THE REACTIONS OF p-NITRODIAZOBENZENE AND THE THEORY OF THE STRUCTURE OF DIAZO COMPOUNDS, tr. by J. Rudinger. [1959] [19]p. 21 refs. M 177.
Order from LC or SLA mi$2.40, ph$3.30 59-19072

Trans. of unidentified Russian mono. from the State Inst. of Applied Chemistry.

The method of acidimetric titration with a glass electrode applied to the reciprocal transformations of different forms of p-nitrodiazobenzene made it possible to draw conclusions concerning both the character of these transformations and the structure of different forms of diazocompounds. The form of diazocompounds that most actively enters the coupling reaction is the diazonium cation. The data of potentiometric titration made it possible to state the formation of two compounds of the saltforming type which are converted into each other. The first one is formed under the action of an acid on unstable sodium salt of the diazocompound, or under the action of an acid on an alkali on the chloride of the diazocompound. The second one is formed after acidification of the stable sodium salt of the diazocompound. These salts contain no mineral cations or anions. The second one of these compounds is titrated with different amounts of hydrochloric acid: in the case of slow reaction an equimolecular amount of the acid is necessary; in the case of a rapid reaction, only half that amount. The same compound undergoes decomposition with elimination of nitrous acid and the formation of a diazoaminocompound in equimolecular amounts. The observations make it necessary to give up the theory of stereoisomeric transformations of diazocompounds worked out by Hantzsch and to propose a new hypothesis of the structure and transformations of diazocompounds, based on the idea that diazocompounds are resonance compounds. On the basis of this hypothesis the first of the salt-forming compounds should be considered as the diazonium diazotate and the second one as the diazonium nitrosaminate. The diazonium cation forming these salts is actually that form of the diazocompounds which is capable of bring about the azo-coupling reaction. (See also 59-19078)

Pracejus, Horst.
2,2-DIMETHYL-CHINUCLIDONE-(6), A MESOMERY-FREE ACID AMIDE. [1959] 8p. (diagr. 1 graph [formulae] omitted) 19 refs.
Order from SLA mi$1.80, ph$1.80 60-14069

Partial trans. (p. 988-993) of Chem[ische] Ber[ichte] (West Germany) 1959, v. 92, no. 4, p. 988-[998].

2,2-methyl-chinuclidone-(6) was prepared, by a 12-stage synthesis, in a racemic and optically active form. This "Lactame" is for steric reasons not capable of any acid amide mesomery. The characteristics resulting from this (basicity, reactivity, and spectral behavior) are investigated and discussed. (Author)

Schwarzenbach, G., Gut, R., and Anderegg, G.
COMPLEXES XXV. POLAROGRAPHIC INVESTIGATION OF EXCHANGE EQUILIBRIUMS; NEW DATA ON THE FORMATION CONSTANTS OF METALLIC COMPLEXES OF ETHYLENEDIAMINE TETRAACETIC ACID AND OF 1,2-DIAMINOCYCLOHEXANE TETRAACETIC ACID. [1959] [25]p. (7 figs. 6 tables [summary] omitted) 20 refs.
Order from SLA mi$2.70, ph$4.80 60-14044

Trans. of Helv[etica] Chim[ica] Acta (Switzerland) 1954, v. 37 [no. 4] p. 937-957.

Seipold, O.
NEW RESULTS AND IDEAS IN THE FIELD OF POLYVINYL CHLORIDE RESEARCH. [1959] 10p. 1 ref.
Order from SLA mi$1.80, ph$1.80 60-14172

Trans. of Chem[ische] Tech[nik] (East Germany) 1949, v. 1, no. 4, p. 107-111.

Vinyl chloride, $CH_2 = CHCl$, an unsaturated, chlorinated hydrocarbon that is gasiform at room temperature, is known to be capable, when activated (with removal of the double bond) of being converted to polyvinylchloride (PVC). Concomitantly there is produced, depending on the polymerization conditions, a shorter or longer chain of C atoms bonded in accordance with

the primary valences and carrying, alternately, 2 H atoms, or 1 H atom, and 1 Cl atom. To what extent the other possibility, that of addition, is a factor (whereby vicinal CH_2 or CHCl groups appear) cannot be stated with certainty as yet. (Author) (Paper read at the 1st Plastics Conference of the Technical Chamber on 21 and 22 April, 1949, in Berlin)

Stachura, W.
p-NITROPHENETOLE; METHOD OF SYNTHESIS FROM p-NITROCHLOROBENZENE. [1960] 22p. 24 refs.
Order from SLA mi$2.70, ph$4.80 60-14143

Trans. of Przemysl Chemiczny (Poland) 1955, v. 11[34] p. 630-635.

There is given a synthetic survey of a technical method for the production of paranitrophenetole from paranitrochlorobenzene and ethyl alcohol in the presence of alkalies. There are discussed the side reactions with special reference to their harmfulness on the main reaction. There are described the author's own investigations on good catalysts of the reaction. As a result of this work it has been found that one of the best catalysts of the reaction of ethoxylation of paranitrochlorobenzene is copper hydroxide. There is shown the superiority of the method with employment of $Cu(OH)_2$ over other methods from the viewpoint of its application in the practice. (Author)

Sudo, Rokuro, Akiyama, Yoshisuke and others.
STUDIES ON γ-BUTYROLACTONE DERIVATIVES. I. SYNTHESIS OF α-AMINO-γ-BUTYROLACTONE. [1959] [13]p. 10 refs.
Order from SLA mi$2.40, ph$3.30 60-14123

Trans. of [Nihon Kagaku Zasshi (Japan) 1953, v. 74, p. 1009-1011].

Turunen, L. and Berndtsson, B.
INFLUENCE OF DIFFERENT FACTORS ON THE HARDENING OF UNSATURATED POLYESTERS AT ELEVATED TEMPERATURES. 8 Jan 60, 11p. (1 table 10 figs. omitted).
Order from SLA mi$2.40, ph$3.30 60-10995

Trans. of Kunstoffe (West Germany) 1959, v. 49, no. 1, p. 9-14.
Another translation is available from ATS $14.95 as ATS-70L30G [1959] 13p.

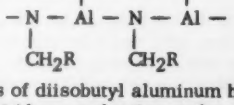
Zakharkin, L. I. and Savina, L. A.
ACTION OF TRIETHYLALUMINUM AND DI-ISOBUTYLALUMINUM HYDRIDE ON CERTAIN ALLYL COMPOUNDS [Deystviye Trietilalyuminiya i Diizobutilalyuminiygidrida na Nekotoryye Allil'nyye Soyedineniya]. [1959] 6p.
Order from ATS $8.00 ATS-98M37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 3, p. 444-449.
The effect of triethylaluminum and diisobutylaluminum hydride on allyl compounds CH_2=CH-CH_2X, X being OR, SR, and NR_2, was investigated. A cleavage of the C-X bond takes place and an unsaturated hydrocarbon and corresponding $(C_2H_5)_2AlX$ are formed. The inability of triethyl aluminum to react with the double bond of the allyl compounds investigated may be explained by the decreasing electron density at the heteroatom owing to the complex bond that reduces the activity of the double bond. In contrast with the triethyl aluminum the addition of the diisobutyl aluminum-hydride to the double bond takes place comparatively easily.
$(i\text{-}C_4H_9)_2$-$AlCH_2CH_2CH_2X$ are formed herein, where X = OR, NR_2, and SR. Further an attempt was made to allow the diisobutyl aluminumhydride to react with the double bond of the vinyl butyl ether. As a result of this reaction, which proceeds with self-heating, ethylene (at 30 to 35°) and butoxy diisobutyl aluminum were obtained. Apparently the organic aluminum compound of the R_2Al-CH_2CH_2OR type, which is initially formed, is as unstable as similar organic magnesium compounds $XMgCH_2CH_2X$ (Refs 6, 7). It decomposes, while ethylene is eliminated and alcoholate $(i\text{-}C_4H_9)_2AlH + CH_2$=CH-$OC_4H_9 \longrightarrow$ $(i\text{-}C_4H_9)_2AlCH_2CH_2OC_4H_9 \longrightarrow$ $(i\text{-}C_4H_9)_2AlOC_4H_9 + CH_2$=$CH_2$ is formed.

Zakharkin, L. I. and Khorlina, I. M.
THERMAL DECOMPOSITION OF ADDITION PRODUCTS OF DIISOBUTYLALUMINUM HYDRIDE TO NITRILES [Termicheskoye Razlozheniye Produktov Prisoyedineniya Diizobutilalyuminiygidrida k Nitrilam]. [1959] 3p.
Order from ATS $6.00 ATS-99M37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959 [no. 3] p. 550-552.

A gas consisting mainly of isobutylene was separated if the compounds RCH=N - $Al(i\text{-}C_4H_9)_2$ were heated to 220 to 240°. In the hydrolysis of the residue, however, the corresponding amine RCH_2NH_2 forms with a yield of up to 80% of the computed value. Thus, in heating a reduction takes place due to the displacement of isobutylene and the formation of new Al-N bonds. In this reduction products of the following linkage systems form:



In adducts of diisobutyl aluminum hydride and disubstituted amides a reduction at the expense of the displacement of isobutylene is possible in principle. It is, however, unimportant and it is accompanied by strong resinification.

Physical Chemistry*

Agranat, N. N. and Shirokov, M. F.
THE THEORY OF THE METHOD OF DETERMINATION OF THE LIMITING SHEAR STRESS OF DISPERSE SYSTEMS BY THE CONE PENETROMETER, tr. by Lionel Mote. [1959] [11]p. 7 refs.
Trans. no. 1002; M 324.
Order from LC or SLA mi$2. 40, ph$3. 30 59-19179

Trans. of *Kolloidnyy Zhurnal (USSR) 1957, v. 19, no. 1, p. 9-13.

On the basis of the properties of a visco-plastic medium a theory is developed for the conical plastometer which leads to the well-known formula, $\theta = KG/h^2$, of P. A. Rebinder (Kolloid, Zhur. 10: 466, 1948) but with a different coefficient, K, calculated according to

$$\frac{1}{K} = \pi \tan^2 \alpha \left\{2\alpha - 2(\sin\alpha + 1)^2 \ln \frac{\sin\alpha}{\sin\alpha + 1} + \left[1 - \cot\left(\frac{\pi}{4} + \frac{\alpha}{2}\right)\right](2\sin\alpha + 1)^2 \ln \frac{2\sin\alpha}{2\sin\alpha + 1} + \left[\cot\left(\frac{\pi}{4} + \frac{\alpha}{2}\right) - \cot\left(\frac{\pi}{4} + \alpha\right)\right]\cot^2\left(\frac{\pi}{4} + \alpha\right) \ln \frac{2}{\cot\alpha + 1} + \cot\left(\frac{\pi}{4} + \frac{\alpha}{2}\right)\left[\cot\frac{\pi}{4} + \alpha - (2\sin\alpha + 1)\right]\right\}.$$

Values of K, calculated according to this equation are 0. 959, 0. 416, 0. 214, and 0. 073, respectively, for cones with angles at the apex $2\alpha = 30^\circ$, 45°, 60°, and $89^\circ 20'$. Values of θ calculated on the basis of the Rebinder equation, but with the new values of K, agree well with values obtained experimentally (Kolloid. Zhur. 19: 3-8, 1957, a translation of which is available from LC or SLA as 59-19178).

Akopyan, A. U.
OVERVOLTAGE OF CATHODIC REDUCTION OF OXYGEN AND ENERGY OF ACTIVATION OF THE CORRESPONDING ELECTROCHEMICAL PROCESSES (Perenapryazheniye Katodnogo Vosstanovleniya Kisloroda i Energii Aktivatsii Sootvetstvuyushchikh Elektrokhimicheskikh Protsessov) tr. by A. Pingell. 1959 [13]p. 16 refs. N R L Trans. no. 769.
Order from OTS $0. 50 60-21038

Trans. of *Zhurnal Fizicheskoy Khimii (USSR) 1959, v. 33, no. 7, p. 1625-1631.

A study was made of the cathodic reduction of oxygen on mercury, platinum, gold and silver in acid and alkaline solutions at various temperatures. The curves obtained expressing the relation between the overvoltage and the logarithm of the current density have two linear regions corresponding to Tafel's equation with different values for the constants a and b. The first region corresponds to formation of hydrogen peroxide and the second to formation of water. The value of b shows that the first region in alkaline medium corresponds to concentration polarization; in other cases, evidently electrochemical polarization takes place. The real activation energy A of the cathodic reduction of oxygen and the corresponding pre-exponential factor B have been calculated from the experimental data. The values of A and B depend little on the nature of the cathode.

Balashova, N. A.
ADSORPTION OF BROMINE AND IODINE ATOMS ON PLATINUM [Adsorbtsiya Ionov Broma i Yoda na Platina]. [1959] 12p. 28 refs.
Order from MDF $6. 00 MDF B-151

Trans. of Zh[urnal] Fiz[icheskoy] Khim[ii] (USSR) 1958, v. 32, no. 10, p. 2266-2273.

The adsorption of iodine and bromine ions on smooth and platinized platinum has been studied by the tagged atom method as a function of potential, time and temperature. It has been established that the adsorption of bromine and iodine anions depends on the potential of the platinum electrode, being increased with the growth of a positive and being decreased with the growth of a negative charge on the surface. The magnitude of the bromine and iodine adsorption increases with time and drops as the temperature rises. The adsorption of bromine and iodine ions on platinum is irreversible to a large degree, where the degree of irreversibility increases with time and decreases with temperature. The significant penetration of bromine and iodine ions into the depth of the metal to be adsorbed on the inner surface has been proven by direct experiments. The magnitude of the bromine and iodine ion adsorption on smooth platinum electrodes is ten times greater than that on platinized platinum in a computation per sq cm of measurable actual surface, which is explained by the difference in their structure. (Author's conclusions)

Dorgelo, H. B. and Daame, H.
THE DETERMINATION OF SIZE, SHAPE, AND SIZE DISTRIBUTION OF SUBMICROSCOPIC PARTICLES. [1959] [15]p. (22 figs. omitted).
Order from SLA mi$2. 40, ph$3. 30 60-10793

Trans. of Ned[erlands] Tijdschrift [voor] Natuurkunde (Netherlands) 1951, v. 17, no. 7, p. 209-233.

A sample of MgO (prepared by heating $MgCO_3$ at 600°C) was made by dispersing the particles in vaseline in a vacuum. Through this the formation of small hollows between the particles occurred. Comparison with the curves of Shull and Hoess gave 250 A as the average particle size and a fairly homogeneous distribution of the size, as the coefficient m in the Maxwell distribution must be approximately 3. This result was confirmed by a photograph made by the Instituut voor Electronenmicroscopie at Delft. Scattering curves were recorded for three samples of carbon black following the methods for simple and multiple scattering. The method of simple scattering apparently gives very strongly deviating values for the larger particles. This can be a result of reciprocal interference or of multiple scattering, although this last should not be expected in the relatively thin samples which are used. The particle size is a factor 20 to 100 times greater than the crystallite size; consequently the particles are built up out of very many crystallites. Apparently no pores are present between the crystallites, as gas adsorption and the electron microscope methods give a particle size which agrees well. The MgO particles apparently consist of a single crystal.

Ende, H. vom, and Bardenheuer, F.
RAPID METHOD FOR DETERMINING THE BASICITY OF OPEN-HEARTH SLAGS. [1960].
Order from BISI £.5 BISITS 1423

Trans. of Arch[iv fur das] Eisenhut[tenwesen] (West Germany) 1959 [v. 30] July, p. 391-396.

Measuring the basicity of open-hearth slags by determining the pH or the electrical conductivity of aqueous suspensions of slags. Review of literature. Description of the rapid method developed. Procedure. Accuracy of the method. Use of basicity figure in desulphurising in open-hearth furnaces. Development of a nomogram to find out the amount of lime to be added to obtain a given final sulphur content. Electrical conductivity of aqueous suspensions of basic and blast-furnace slags. (Author)

Entelis, S. G., Tsikulin, M. A. and others.
DETERMINATION OF THE SPECIFIC SURFACE AREAS OF POROUS BODIES AND OF POWDERS BY THE METHOD OF GASEOUS FLOW UNDER LOW PRESSURE [METHODS AND APPARATUS OF PHYSICAL-CHEMICAL RESEARCH] [Izmereniye Udel'noy Poverkhnosti Poristikh tel i Poroshkov Metodom Istecheniya Razrezhennogo Gaza. Metody i Tekhnika Fiziko-Khimicheskogo Issledovaniya]. [1959] 7p.
Order from ATS $9.75 ATS-88M37R

Trans. of Zhur[nal] Fiz[icheskoy] Khim[ii] (USSR) 1958, v. 32, no. 9, p. 2187-2191.

The specific surface area of porous bodies can be measured using a gaseous flow in the Knudsen pressure range, which is described in the papers of B. V. Deryagin and his co-workers. The present paper describes an improved and simpler apparatus. The formula given by Deryagin was used in conversions in carrying out determinations. Using this method the specific surface areas of the following substances were determined (Tables 1 and 2): porous glass (Shott Nr 4, Iena); porous glass (Shott Nr 3, Druzhnaya Gorka); porous porcelain (svecha Chemberlena); birch charcoal; aluminum silicate; untreated kaolin as well as kaolin which had been heated previously to 800°; porous quartz; burned chamotte; NB powder; tetranitro penterythrite; hexagene; and trinitrotoluene (TNT). (See also 59-11871, 59-13023)

Fedorova, N. S.
RELATIONSHIP BETWEEN HYDROGEN OVERVOLTAGE ON ALLOYS AND THEIR INTERATOMIC DISTANCES (O Svyazi Mezhdu Perenapryazheniyem Vodoroda na Splavakh i Mezhatomnymi Rasstoyaniyami v Nikh). Dec 59, 8p. 13 refs. RTS 1117.
Order from LC or SLA mi$1. 80, ph$1. 80 60-13459

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1958, v. 32, no. 3, p. 506-511.

The potential of hydrogen evolution on electrolytically deposited iron-nickel alloys is shown to differ from the potentials on pure iron and nickel in the same solutions. An examination of hydrogen evolution potential values at high current densities revealed that alloys and pure metals can be arranged in a reproducible ascending order. The relationship between the potential of hydrogen evolution and the logarithm of current density can be expressed for the majority of alloys by two intersecting straight lines with different values of coefficient b in the Tafel equation; at high current densities, b is always greater than at low ones; the magnitude of b changes in relation to the composition of the alloy and the composition of the solution. On the basis of data on parameters of the Fe-Ni alloy lattices it is shown that the interatomic distances of an alloy change with composition from 2. 47 to 2. 58 A. By comparing the potential of hydrogen evolution at high current densities with the interatomic distances of alloys and pure metals, the relationship between these values for pure metals, established by N. E. Khomutov, was confirmed. As the interatomic distance of an alloy approaches 2. 76 A, the overvoltage on it decreases.

Fincke, A. and Heinz, W.
COUETTE MEASUREMENTS WITH ROUGHENED CYLINDERS. [1959] 3p. 2 refs.
Order from SLA mi$1. 80, ph$1. 80 60-14008

Trans. of Kolloid-Zeitschrift (West Germany) 1957, v. 152, no. 2, p. 148-149.

A Couette measuring apparatus, in which both cylinders had extensively roughened surfaces as a result of coatings containing quartz sand, yielded decisively optimum values. A stress-relieving test followed at intervals of about one minute; true Bingham yield values could thus be measured (chocolate with low fat content). Reproducibility of results was very good. Measurement results obtained with Newtonian and non-Newtonian (however, homogeneous or molecularly dispersed) substances did not deviate from values obtained with smooth cylinders; visual observation of the behavior of, say, toothpaste in the annular space showed no slippage effect during this measuring period. According to these observations, coatings with the usual fat content are not actually Bingham bodies, for their true yield point is lower than that obtained by extrapolation.

Galkin, A. A. and Kichigin, D. A.
INVESTIGATION OF THE PARAMAGNETIC RESONANCE OF DONBASS COALS (Issledovaniye Paramagnitnogo Rezonansa v Kamennykh Uglyakh Donetskogo Basseyna) tr. by M. Slade. [1959] [18]p. (foreign text included) 12 refs. Trans. no. 4202.
Order from LC or SLA mi$2. 40, ph$3. 30 60-15376

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1958, v. 3, no. 7, p. 8-14.

Investigations of paramagnetic resonance in coals of different geological age revealed the existence of a correlation between the intensity of the PR line and the degree of metamorphism of the coal. The intensity of the PR line increases with increasing geological age of the coal. The breadths of the PR lines of different grades of anthracite vary between 0.5 and 3.5 oersteds, the widths of the lines of the other coals between 6 and 7 oersteds. The narrowing of the PR line in anthracite is caused by exchange interaction. An influence of the structural components of coal on the breadth and intensity of the PR line was established. The PR lines of the fusain of coking coal, gas coal, and long-flaming coal are indistinguishable within the limit or error of the experiment. By comparing the intensities of nuclear and electronic resonances, the static spin susceptibilities of coals were established and the order of magnitude of the electron concentration in 1 g of coal was determined.

Gavrilov, B. G. and Kim, N.
THERMOCATALYTIC REACTIONS OF ALKYLNAPHTHALENES (ISOAMYLNAPHTHALENE). [1959] 4p.
Order from ATS $5.00 ATS-84M37R

Trans. of *Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1957, v. 30, no. 6, p. 963-964.

Gu, Bo-e, U, Chzhen-syao, and Shapiro, M. D.
EFFECT OF DIFFERENT CATALYSTS ON THE PROCESS OF PARAFFIN OXIDATION. [1959] 9p.
Order from ATS $12.80 ATS-33M38R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1959, v. 4, no. 10, p. 10-16.

Gurdzhinyan, L. D.
EFFECT OF TEMPERATURE ON THE RHEOLOGICAL PROPERTIES OF CLAY SUSPENSIONS. [1959] 5p.
Order from ATS $8.25 ATS-89M37R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh Zaved[eniy]. Neft' i Gaz (USSR) 1959, v. 2, no. 7, p. 91-95.

Izmaylov, N. A.
INFLUENCE OF SOLVENTS ON STRENGTH OF ACIDS (Vliyaniye Rastvoriteley na Silu Kislot). Nov 59, 18p. 124 refs. RTS no. 1174.
Order from LC or SLA mi$2.40, ph$3.30 60-13179

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1950, v. 24, no. 3, p. 321-336.

The influence of different solvents on the strength of acids was reviewed. It was established that only for the acids of the same chemical group and in the solvents similar in structure the deductions derived from the Brönsted theory were applicable. The change in acid strength from one solvent to another is determined first of all by the basicity of the solvent; the dielectric constant is of secondary, although sufficiently essential importance. Usually on changing solvents there is both, general and relative change in the strength of acids. This influence of solvent was called its differentiating effect. The strongest differentiating effect is shown by the solvents which differentiate the strength of salts. The majority of solvents show strongest effect towards acids belonging to different chemical groups. The differentiating effect results from the interaction between the solvent and the dissolved acids of various chemical groups with the formation of addition products varying in composition and polarity. Besides this fundamental type of differentiating effect, three other types were demonstrated. It was established that the dissociation of acids does not take place according to the equations: $HA + M \rightleftarrows MH^+ - A^-$, as postulated by Brönsted, but according to the following equation:
$HA + M \rightleftarrows MHA \rightleftarrows MH^+ + A^-$.

Kirmse, W.
REACTIONS WITH CARBENES AND IMINES AS INTERMEDIARY STAGES. [1959] 14p. (25 formulas omitted) 62 refs.
Order from SLA mi$2.40, ph$3.30 60-14071

Trans. of Angewande Chemie (West Germany) 1959, v. 71, no. 17, p. 537-541.

Splitting nitrogen off organic molecules is capable of leading to reactable uncharged intermediary stages with an electron sextet, to derivatives of the methylene CH_2 or of the imine NH. Other methods of forming these intermediary stages are given for comparison. Their reactions are discussed, as they depend upon structure and occurrence. Conversions that are utilizable for obtaining preparations are emphasized. (Author)

Koritskiy, A. T., Molin, Yu. N. and others.
ELECTRON PARAMAGNETIC RESONANCE STUDY OF RADICALS FORMED IN IRRADIATION OF POLYETHYLENE WITH FAST ELECTRONS. [1959] 12p.
Order from ATS $26.75 ATS-97M37R

Trans. of Vysokomolekulyarnyye Soyedineniya (USSR) 1959, v. 1, no. 8, p. 1182-1193.

Kuznetsov, A. N.
THE MECHANISM AND THE KINETICS OF THE LOW TEMPERATURE REDUCTION OF OXIDES OF IRON BY CARBON MONOXIDE, HYDROGEN, AND THEIR MIXTURES (Mekhanizm i Kinetika Nizkotemperaturnogo Vosstanovleniya Okislov Zheleza Okisyu Ugleroda, Vodorodom i ikh Smesyami). 1959 [18]p. 2 refs. NRL Trans. no. 735.
Order from OTS $0.50 59-21086

Trans. of Soveshchaniye Instituta Metallurgii Ural'skogo Filiala Akademii Nauk SSSR i Magnitogorskogo Metallurgicheskogo Kombinata, 1955. Trudy, p. 65-79.

The investigation was made with small briquettes made from powders of chemically pure oxide and magnetic oxide of iron. The activation energies of

the processes of reduction of Fe_2O_3 to Fe_3O_4 by hydrogen (-30 Kcal) and by carbon monoxide (-28 Kcal) were determined. The activation energy of the process of reduction of Fe_3O_4 to Fe by hydrogen appears to be 15.68 Kcal.

List, G.
BREAKDOWN VOLTAGE AND IGNITION LAG IN NITROGEN AT HIGHER PRESSURES (Über die Durchschlagsspannung und die Zündverzogerung in Stickstoff bei höherem Druck) tr. by D. A. Sinclair. 1959, 23p. 17 refs. Technical Trans. 828.
Order from NRCC

Trans. of Annalen der Physik (East Germany) 1957 [6 Folge] v. 19, p. 283-297.

The breakdown voltage of nitrogen was measured at pressures of 4 to 100 atm for small electrode spacings. Departures from Paschen's law were encountered when the breakdown field strength reached approximately 4×10^5 v/cm. The ignition lags measured for increasing voltage can be converted into the distribution function required by von Laue for statistically determined lag times. Up to approximately 20% overvoltage the mean statistical ignition lag is approximately inversely proportional to the percentage of overvoltage. Only at higher voltages does it decrease more sharply. The distribution functions obtained show that the measured time lags can be traced to purely statistical causes. This applies also to the region in which the departures from Paschen's law are encountered. The mean statistical ignition lags at high gas pressures and overvoltages of a few percent are of the order to a few seconds. This suggests that at high gas pressure and correspondingly high field strength a mechanism determined by the latter leads with but very small probability to a discharge. (Author)

Pleskov, Yu. V.
REDUCTION REACTION ON A GERMANIUM CATHODE. [1960] 6p. 9 refs.
Order from MDF $3.00 MDF P-141

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1960, v. 130, no. 2, p. 362-365.

Injection coefficients (the fraction of valence electrons in the total current) were experimentally obtained which showed that both free and valence electrons are involved in the reduction reaction on a Ge electrode when $KMnO_4$, $K_3Fe(CN)_6$, KI_3, quinone, or $K_2Cr_2O_7$ are used as oxidizers. Reduction of H_2O_2 did not affect I_{coll} and therefore was not accompanied by hole injection. The electrodes were 6-mm-diam disks about 12-mm thick, prepared from (111) oriented single-crystal n-type Ge with a specific resistivity of 2.5 ohm-cm and a hole-diffusion length of 0.5 to 0.7 mm. The values of α lay between 0 and 1, and, except for the case of $Cr_2O_7^{2-}$, were independent of the reduction current. Values of α were influenced by the concentration of $K_3Fe(CN)_6$ and of $KMnO_4$, but not by that of KI: the α was very responsive to the state of the electrode surface. As the negative Ge potential increased near the hydrogen-evolution potential, the α started to drop. Polarization curves on platinum and on n-type Ge electrodes were wave shaped where the limiting current density, i_{lim}, was the same in both metals. (The curve of the $KMnO_4$ reduction by Ge contained two waves.) The curves of the reduction of $K_3Fe(CN)_6$, $K_2Cr_2O_7$, quinone, and H_2O_2 by hole Ge also contained one wave while the $KMnO_4$ curve had two where the magnitude of i_{lim} was the same as on the Pt and n-type Ge electrodes up to current densities of 20 ma/sq cm (up to 100 ma/sq cm for $K_3Fe(CN)_6$. The limiting current was proportional to $\sqrt{\omega}$. The height of the waves for the reduction of KI_3 on p-type Ge was less than on n-type, and depended slightly on agitation of the solution.

Pliginskaya, L. V. and Chizhikov, D. M.
INVESTIGATION OF THE CATHODIC POLARIZATION OF NICKEL IN SULPHATE SOLUTIONS (Issledovaniye Katodnoy Polyarizatsii Nikelya v Sul'fatnykh Nastvorakh). July 58, 7p. 6 refs. C. T. S. no. 487.
Order from LC or SLA mi$1.80, ph$1.80 60-13320

Trans. of [Akademiya Nauk SSSR]. Institut Metallurgii. Trudy, 1957, v. 1, p. 78-84.

Experiments showed the possibility of electrodeposition of nickel from sulphate solutions without a buffer (boric acid). In the current density range 50 to 400 amp/sq m, in the absence of boric-acid polarization, is an approximately linear function of the logarithm of current density. This is in close agreement with the theory of retarded discharge of ions. An increase in temperature of the solution, pH (in the range 1 to 6), concentration of nickel, or content of chlorine ion leads to reduction of polarization at a given current density. Addition of 20 g/ℓ of boric acid to the solution, while preserving the overall picture of the relative positions of all the polarization curves, shifts them in the direction of increased polarization.

Püschel, A. and Eckhard, S.
ORGANIC SOLVENTS IN FLAME SPECTROMETRY. [1960].
Order from BISI £3 10s BISITS 1636

Trans. of Arch[iv für das] Eisenhütt[enwesen] (West Germany) 1959 [v. 30] Dec, p. 731-735.

Effect of alcohol in flame spectrometry. Practical application. Explanatory experiments. Determination of volume to be atomized. Effect of droplet size. Conditions for direct atomization. Effect of flame temperature. Chemical influences. (Author)

Schenck, H. and Gerdom, K. H.
EQUILIBRIA OF CARBON AND OXYGEN IN LIQUID IRON AND THE EFFECT OF LOW SILICON CONTENTS UPON THE EQUILIBRIA. [1960]
Order from BISI £5 15s BISITS 1461

Trans. of Arch[iv für das] Eisenhütt[enwesen] (West Germany) 1959 [v. 30] Aug, p. 451-460.

The equilibrium relations between carbon and oxygen in liquid, silica-containing iron in solution were revaluated with the object of determining the true equilibrium constants and the reaction coefficients of the reacting elements. The equilibrium diagrams of the reactions were consequently re-drawn. (Author)

Schmidt, K. G.
PHASE CONTRAST MICROSCOPY IN DUST TECHNOLOGY (Die Phasenkontrastmikroskopie in der Staubtechnik) tr. by W. H. Everhardy.
25 Mar 59 [51]p. (105 figs. omitted).
Order from LC or SLA mi$3.30, ph$7.80 59-14631

Trans. of Staub (West Germany) 1955, p. 436-[4]67.

Semenchenko, V. K.
THE BASIC CHARACTERISTICS OF GENERALIZED CRITICAL PHENOMENA (Osnovnye Svoistva Obobshchennykh Kriticheskikh Yavleniy). Jan 60, 19p. 29 refs. RTS no. 1222.
Order from LC or SLA mi$2.40, ph$3.30 60-15063

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1952, v. 26, no. 9, p. 1337-1348.

The identity of critical phenomena and phase changes of the second kind is stressed. (See also 60-13481)

Semenchenko, V. K.
CRITICAL PHENOMENA AND TYPE II PHASE TRANSITIONS (O Kriticheskikh Yavleniyakh i Fazovykh Perekhodakh II Roda). Jan 60, 9p. 5 refs. RTS no. 1221.
Order from LC or SLA mi$1.80, ph$1.80 60-13481

Trans. of A[kademiya] N[auk] SSSR. Sektor Fiziko-Khimicheskogo Analiza. Izvestiya, 1955, v. 26, p. 56-61.

The elementary theory of critical transitions is shown to permit the prediction of all the basic features of type II phase transitions. (See also 60-15063)

Shul'ts, A. L. and Tsyganov, G. A.
THE MECHANISM OF THE DEPASSIVATING EFFECT OF CHLORIDES ON THE PROCESS OF ANODIC SOLUTION OF NICKEL. [1959] 3p.
Order from ATS $6.00 ATS-20L33R

Trans. of Akad[emiya] Nauk Uzbek[skoy] SSR [Tashkent]. Doklady, 1954, no. 9, p. 33-36.

Tomassi, W. and Houwalt, A.
POTENTIALS OF METALLIC ELECTRODES IN PURE WATER, tr. by E. R. Hope. Mar 59 [12]p. 27 refs. T 4 Pol.
Order from NRCC mi$0.50, ph$3.00 NRCC C-3142

Trans. of Przemysl Chemiczny (Poland) 1957, v. 13[36] [no. 2] p. 82-87.

Potentials of mercury and platinum electrodes were measured in pure water. The electrodes were platinum plates covered with platinum black of various degrees of subdivision, smooth platinum wires, and the same wires coated with platinum black. The electrodes were tested in deaerated water and in air-saturated water. The results obtained show that both mercury and platinum electrodes in pure water behave like oxide electrodes and assume a potential corresponding to the molar activity of hydroxyl ions.

Trapeznikov, A. A. and Fedotova, V. A.
THIXOTROPY AND METHODS OF ITS ESTIMATION IN LIQUID-PLASTIC COLLOIDAL SYSTEMS (Tiksotropiya i Metody yeye Otsenki v Zhidko-plastichnykh Kolloidnykh Sistemakh) tr. by G. N. Gibson. Jan 55 [7]p. (4 figs omitted) 19 refs. L.C. 464; TL 1630; M 1055.
Order from LC or SLA mi$1.80, ph$1.80 60-13758

Trans. of [Akademiya] Nauk SSSR. Doklady, 1954, v. 95, no. 3, p. 595-598.
Another translation is available from SLA as RT-3424 [10]p.

See also 59-17517

Trillat, J. J., Tertian, L., and Britton, S. C.
STUDY BY ELECTRON DIFFRACTION AND MICROSCOPIE OF NATURAL OR ARTIFICIAL OXIDATION FILMS FORMED ON PURE TIN AND ON TIN PLATE. 4 Dec 59 [14]p. 6 refs.
Order from SLA mi$2.40, ph$3.30 60-14126

Trans. of Métaux (Corrosion-Industries) (France) 1957, v. 32, p. 475-481.

The artificial oxidation layers formed on tin plate after different passivation treatments generally consist of SnO_2, although this oxide has never been identified in the natural oxidation films obtained at temperatures lower than or equal to 218°C. There is also found there the stannous oxide SnO and the simultaneous presence of the two was clearly observed in one sample. The presence of Fe_3O_4 seems equally confirmed; SnO_2 and Fe_3O_4 badly crystallized or very finely crystallized give way to diffuse halos or enlarged rings which were observed at a number of points. The oxide SnO seems always crystallized in very large crystals. Fe_3O_4 is formed on the steel where there are pores in the tin coating. The presence of chrome is responsible for a great part of the protective layer of the films. It is necessary to think that the chrome is not crystallized.

Tsuruta, Shiro and Suzuki, Yasuo.
MELTING POINT OF OXALIC ACID GLYCOL ESTER. [1959] 2p. 4 refs.
Order from SLA mi$1.80, ph$1.80 60-14012

Trans. of [Nihon Kagaku Zasshi] (Japan) 1948, v. 69 [no. 4/6] p. 56-57.

Wikdahl, N. A. L.
PROCESS AND APPARATUS FOR SEPARATING OR FRACTIONATING DISPERSIONS, tr. by C. P.
7 Jan 60, 6p. (2 figs. omitted) 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-15099

Trans. of Swedish patent 154758, cl. 1 a : 13, pat. 8 Sep 53, granted 5 Apr 56, pub. 12 June 56.

A process is described wherein the dispersion is introduced tangentially into a chamber with circular cross section and is divided into two fractions which are continuously fed from the chamber each through its outlet opening. The process is characterized in that at least one of the fractions in the passage through the outlet opening is brought into direct contact with a device located therein which depending on the density of the dispersion increases or diminishes the size of the outlet opening. The apparatus consists of a chamber with circular cross section which is provided with a tangential inlet for the dispersion and with two outlets for the fractions. The apparatus is characterized in that in at least one of the outlets a device is placed which is automatically adjustable along the major axis of the chamber in dependency on the density of the fraction. The device is elastically suspended or supported.

Yesel'son, B. N. and Lazarev, B. G.
ON THE VELOCITY OF TRANSFER BY THE He II FILM. [1959] 6p. 19 refs. T/L 839; M 1056.
Order from LC or SLA mi$1.80, ph$1.80 60-13759

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1951, v. 81, no. 4, p. 537-[539].
Another translation is available from LC or SLA as RT-2106 [6]p.

Zhigach, A. F. and Kochneva, L. N.
NITROGEN DERIVATIVES OF DIBORANE (Azotsoderzhashchiye Proizvodnye Diborana).
July 58 [16]p. 64 refs. C. T. S. no. 452.
Order from LC or SLA mi$2.40, ph$3.30 60-15565

Trans. of Uspekhi Khimii (USSR) 1956, v. 25, no. 10, p. 1267-1281.

EARTH SCIENCES

Magnitskiy, V. A.
PRINCIPLES OF EARTH PHYSICS. [1959] [439]p. 139 refs. F-TS-9444/V.
Order from LC or SLA mi$11.10, ph$66.60 60-13306

Trans. of mono. Osnovy Fiziki Zemli, Moscow, 1953, 290p.

Topics discussed include (1) the age and temperature of the earth, (2) the figure of the earth, (3) seismic phenomena, (4) elements of the theory of elasticity, (5) the constitution of the earth on the basis of seismic data, (6) the density and elastic constants of the earth, (7) the structure of the earth's crust and its movements, (8) the gravitational field and the constitution of the earth, and (9) an interpretation of the fundamental conclusions on the constitution of the earth in the light of the data of modern physics. The book is designed as a textbook for advanced university students majoring in astronomy and geodesy.

Climatology and Meteorology

Alekseyev, G. A.
METHODS FOR CALCULATION OF MAXIMUM DISCHARGE AND HYDROGRAPHS OF FLOODS IN ABSENCE OF OBSERVATION [O Metodakh Rascheta Maksimal'nykh Raskhodov i Gidrografov Pavodkov pri Otsutstvii Nablyudenii]. 22 Jan 60, 13p. 6 refs.
JPRS: L-897-D.
Order from OTS $0.50 59-11595

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 6, p. 40-45.
Another translation is available from LC or SLA mi$2.40, ph$3.30 as 59-22230, CTS-444, Mar 59 [11]p.

The most frequently used empirical or semiempirical formulas for computing maximum flood discharges are reviewed, the principles on which they are based are critically assessed, and a previous attempt by D. L. Sokolovskii (Meteorologiya i Gidrologiya 1956, no. 5) to make a similar review is criticized.

Astapenko, P. D.
ATMOSPHERIC FRONTS IN THE WEST ANTARCTIC
28 Jan 60, 11p. JPRS: L-1184-N.
Order from OTS $0.50 60-11221

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 24-29.

We wish to demonstrate with actual data certain peculiarities of the analysis of atmospheric fronts in the Antarctic, revealed in the course of practical investigations at the International Weather Center in Little America during the autumn and winter of 1958. (Author)

Churinova, M. P.
EXPERIMENT IN CALCULATING THE COEFFICIENT OF TURBULENCE FROM A TEMPERATURE-AND-WIND SOUNDING (Opyt Vychisleniya Koeffitsienta Turbulentnosti po Temperaturno-vetrovomu Zondirovaniyu) tr. by Marcel I. Weinreich.
23 Apr 59, 9p.
Order from LC or SLA mi$1.80, ph$1.80 SCL-T-247

Trans. of [Glavnaya Geofizicheskaya Observatoriya, Leningrad. Trudy] (USSR) 1956, no. 63(125), p. 168-171.

A study indicates that the coefficient of turbulence, K, can be computed quickly and sufficiently exact by means of L. D. Laikhtman's formula

$$K = \frac{\omega_z U_H^4}{g^2 \left(\ln \frac{\theta_H}{\theta_0} \right)^2}$$

where K is in sq m/sec, U_H is the geostrophic velocity of the wind in m/sec, g is the acceleration of the force of gravity in m/sec^2, θ_0 and θ_H are the potential temperatures in degrees (absolute scale) at the level of the booth and at the level H, respectively; and $\omega_z = \omega \sin \phi = 7.29 \times 10^{-5}$ ($\sin \phi$ is the angular velocity of the rotation of the earth).

Chuvayev, A. P.
AN EXPERIMENT IN CONTROLLING THE DEVELOPMENT OF STRONGLY CONVECTIVE CLOUDS IN NORTHWESTERN EUROPEAN USSR. [1959] 37p.
Order from ATS $64.95 ATS-68L36R

Trans. of Glavnaya Geofiz[icheskaya] Observatoriya [Leningrad]. Trudy.(USSR) 1957, no. 67(129) p. 59-103.

Imyanitov, I. M. and Chuvayev, A. P.
THE PRINCIPAL MECHANISMS OF ELECTRIC CHARGE GENERATION IN STORM CLOUDS (Ob Osnovnom Mekhanizme Elektrizatsii Grozovykh Oblakov) tr. by M. Slade. [1959] [10]p. (foreign text included) 3 refs. Trans. no. 4287.
Order from LC or SLA mi$1.80, ph$1.80 60-15372

Trans. of Meteorologiya i Gidrologiya (USSR) 1955, no. 4, p. 34-36.

The intensity of the electric field was measured at first in thick (about 3500 m) cumulus clouds developing naturally (i.e., in clouds of a convective nature which have not yet reached the stage of ice formation and yield neither rain nor precipitations that evaporate before they reach the ground), and subsequently in the same clouds when solid phase particles (ice particles) are artificially created in them. The average water content (quantity of liquid water in one cubic meter in the upper portion of these clouds found in the first determinations was 1 to 1.5 g/cu m. In the central portion of the cloud the water content was naturally much higher. The bottom of the clouds was at 1700 m above sea level, and their top at about 5200 m. The average velocity of the vertical currents recorded during the flight in the upper portion of these clouds was 5 to 8 m/sec. The average fields in these clouds prior to formation of ice particles had an intensity of approximately 15 v/cm. The $(E_{max} - E_{min} / E_{med})$ ratio was up to 0.5. After appearance of an ice phase in the clouds the field intensities began to increase. Within 2 to 4 minutes the average field had intensified to 46 v/cm, and the coefficient of inhomogeneity had increased to 2.3. After a few minutes large raindrops started to fall from the clouds. Soon the rain intensified and fell over a 30 sq km area.

Kolokolov, V. P.
THUNDERSTORM ACTIVITY AND THE RADAR CHARACTERISTICS OF A CLOUD. [1959] 3p.
Order from ATS $4.50 ATS-29M38R

Trans. of Glavnaya Geofiz[icheskaya] Observatoriya [Leningrad]. Trudy (USSR) 1957, no. 67(129) p. 129-130.

Krasikov, P. N. and Chikirova, G. A.
THE EFFECT OF ADMIXTURES OF AMMONIUM CHLORIDE ON THE STABILITY OF WATER FOG. [1959] 5p.
Order from ATS $10.50 ATS-74M37R

Trans. of Glavnaya Geofiz[icheskaya] Observatoriya [Leningrad]. Trudy (USSR) 1958, no. 82 [144] p. 41-44.

Muchnik, V. M.
SOME RADAR CHARACTERISTICS OF RAINSTORM AND THUNDERSTORM CELLS. [1959] 5p.
Order from ATS $9.00 ATS-67L36R

Trans. of Tsentral['naya] Aerolog[icheskaya] Observatoriya. Trudy (USSR) 1958, no. 20, p. 82-87.

Nasilov, D. N.
RADIOMETEOROLOGY; RADIO METHODS IN METEOROLOGY. [1959] [200]p. 160 refs. F-TS-9818/V.
Order from LC or SLA mi$8.70, ph$3.30 60-13089

Trans. of mono. Radiometeorologiya; Radiometody v Meteorologii. Moscow, 1956, 215p.

Contents:
Methods of free atmosphere investigation
Electromagnetic fields in the atmosphere
  Atmospherics
  Observation of reflected pulses
  Measurement of the electromagnetic field intensity of radio stations
Physical fundamentals of radio meteorology
  General remarks
  The role of vaporized and fluid-droplet water content
  The role of atmospheric conductivity

Nemchenko, V. I.
THERMOBATTERY FOR MEASURING PULSATIONS IN AIR TEMPERATURE. 15 Jan 60, 8p. 2 refs. JPRS: 2127-N.
Order from OTS $0.50 60-11172

Trans. of [Akademiya Nauk SSSR.] Morskiy Gidrofizicheskiy Institut. Trudy, 1958, v. 13, p. 73-77.

A survey.

Pasternak, N. B., Shurupov, V. I., and Kosenko, N. A.
CASTING IRON IN ALUMINUM ALLOY MOLDS [Lit'ye Chuguna v Formy iz Splava AL-9]. [1959].
Order from LSB $3.50 LSB-107

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 4, p. 24-25.

Shishkov, Yu. A.
NORMAL LINEAR CORRELATIONS OF VECTORS (O Normal'noy Lineynoy Korrel'yatsiy Vektorov) tr. by Marcel L. Weinreich. 17 July 59, 11p.
Order from LC or SLA mi$2.40, ph$3.30 SCL-T-261

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 6, p. 55-58.

The theory of the correlation of vector's is presented in a form intended for hydrometeorologists that have access to electronic computers and a knowledge of mathematical statistics and of the tensor computations. Discussions are presented on tensors of regression and correlation, and on the correlation index. A method is given for the correlation of two random vectors, and an example is included of a correlation of the wind vector with the ice drift.

Shupyatskiy, A. B.
RADAR MEASUREMENT OF THE MEAN DROP SIZE AND THE WATER CONTENT IN HEAVY RAINSTORMS. [1959] 9p.
Order from ATS $13.80 ATS-65L36R

Trans. of Tsentral['naya] Aerolog[icheskaya] Observatoriya. Trudy (USSR) 1958, no. 20, p. 58-66.

Stepanenko, V. D.
IMPROVING THE METEOROLOGICAL TARGET DETECTION EFFICIENCY OF THE "KOBAL'T" RADAR. [1959] 5p.
Order from ATS $8.45 ATS-66L36R

Trans. of Tsentral['naya] Aerolog[icheskaya] Observatoriya. Trudy (USSR) 1958, no. 20, p. 67-72.

Yakovlev, V. I.
AN ANALYTICAL METHOD OF PROCESSING THE DF DATA OF A DRIFTING AUTOMATIC RADIO-METEOROLOGICAL STATION [Analiticheskiy Sposob Obrabotki Dannykh Pelengovaniya Dreyfuyushchikh Avtomaticheskikh Radiometeorologicheskikh Stantsiy]. 21 Dec 59, 4p. 1 ref. JPRS: L-1145-N.
Order from OTS $0.50 60-11133

The geographical coordinates of a drifting automatic radio-meteorological station are determined through the parameters of two great circles on the terrestrial sphere.

Geodesy

Lyapunov, A. A.
CRITERION (TEST) FOR VERIFYING THE INTERPRETATION OF GRAVITY OBSERVATIONS. Aug 59 [5]p. 4 refs. MCL-34/V.
Order from LC or SLA mi$1.80, ph$1.80 60-15509

Trans. of Akademiya Nauk SSSR. Doklady, 1955, v. 102, no. 2, p. 265-266.

See also 60-15508.

Smolitskiy, Kh. L.
GENERALIZATION OF A CRITERION FOR CHECKING THE INTERPRETATION OF GRAVITY OBSERVATIONS. Aug 59 [5]p. 1 ref. MCL-33/V.
Order from LC or SLA mi$1.80, ph$1.80 60-15508

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 106, no. 2, p. 237-238.

It is shown that the test of A. A. Lyapunov (Akad. Nauk SSSR Doklady 102: 265, 1955: a translation is available from LC or SLA as 60-15509) can be obtained in a different way, which leads to an alagous criteria for a finite mass of arbitrary form.

Geography

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 14, 18 Mar 60]. [1960] [13]p. 14 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-15675

Trans. of unevaluated information selected from Russian-language publications.

Ssu, Ya-feng, Ch'en, Meng-hsiung and others.
ARTICLES ON NATURAL GEOGRAPHY, LAND UTILIZATION, GROUND FREEZING AND POPULATION DENSITY OF CERTAIN AREAS IN COMMUNIST CHINA: PRELIMINARY SURVEY OF THE NATURAL GEOGRAPHY OF THE CH'ING-HAI HU AREA; SOME LANDFORM AND LAND UTILIZATION PROBLEMS IN THE K'AI-FENG AREA; GROUND FREEZING IN THE PEIPING AREA; POPULATION DENSITY OF THE NAN-T'UNG SPECIAL DISTRICT IN KIANGSU PROVINCE. 15 Feb 60, 44p. (4 maps omitted) 16 refs. JPRS: 1166-D.
Order from OTS $1.25 60-31053

Trans. of Ti-li Hsüeh-pao (Chinese People's Republic) 1958, [v. 24] no. 1, p. 33-46, 49-58 (extracts), 60-66 (extracts) and 79-82.

Contents:
Preliminary survey of the natural geography of the Ch'ing-hai Hu area, by Ya-feng Ssu, Meng-hsiung Ch'en, Wei-chih Li, and Shih-ming I

Some landform and land utilization problems in the K'ai-feng area, by Hsi-ming Ssu and Jui-chun Ma
Ground freezing in the Peiping area, by Ssu-chung Cheng
Population density of the Nan-T'ung special district in Kiangsu province, by Huan-jung Hu

Geology

Chou, Chin-han.
THE RESULTS AND FUTURE OF SCIENTIFIC RESEARCH IN GEOPHYSICAL PROSPECTING IN COMMUNIST CHINA. 18 Jan 60, 15p. JPRS: 1119-D.
Order from OTS $0.50 60-31023

Trans. of Ti Ch'iu Wu Li K'an T'an (Chinese People's Republic) 1959, no. 9, p. 8-12.

Drwila, St. and Zytka, Jan.
RESULTS OF SEISMIC RESEARCH IN THE CARPATHIAN FORELAND AREA. 24 Oct 58, 7p. JPRS(NY)-L-424.
Order from OTS $0.50 PB 141 320T

Trans. of Nafta (Poland) 1957 [v. 13] no. 10, p. 275-278.

Fedynskiy, V. V.
OUTLOOK FOR DEVELOPMENT OF GEOPHYSICAL PROSPECTING FOR USEFUL MINERAL DEPOSITS IN THE USSR IN 1959-65. 3 Feb 60, 16p. JPRS: L-1193-N.
Order from OTS $0.50 60-11250

Trans. of Sovetskaya Geologiya (USSR) 1959, no. 8, p. 3-13.

Kyukov, A. I.
THE ALL-UNION GEOPHYSICAL CONFERENCE. 8 Feb 60, 12p. JPRS: L-1194-N.
Order from OTS $0.50 60-11251

Trans. of Sovetskaya Geologiya (USSR) 1959, no. 8, p. 160-165.

Topics are noted of papers that were read at the conference, which was held on February 2 to 7, 1959 in Leningrad.

Ma, Ching-chih.
LAND FORMS OF CHANG-CHU-KOU IN CHING-PIEN OF NORTHERN SHENSI. 26 June 59, 12p. JPRS: 786-D.
Order from OTS $0.50 59-11678

Trans. of Ti-li-hsueh Tse-liao (Chinese People's Republic) 1957, no. 1, p. 88-94.

Mineralogy

Kalenov, A. D.
GENETIC TYPES OF SCANDIUM DEPOSITS AND THEIR INDUSTRIAL IMPORTANCE (Geneticheskiye Tipy Mestorozhedeniya Skandiya i ikh Promyshlennoye Znacheniye). 1959, 4p.
Order from RIA $6.00 RIA R-1-1

Trans. of Razvedka i Okhrana Nedr (USSR) 1959 [v. 25] no. 6, p. 3-6.

Lithologic relationships governing scandium distribution are treated, as are geochemical characteristics. Scandium content in certain minerals is listed and an industrial minimum is quoted at 0.02 percent. A genetic classification of scandium deposits is included and mineral associations are noted. Type localities for the various classes are listed. (RIA abstract)

Shcheglov, A. D.
FLUORITE DEPOSITS OF WESTERN TRANS-BAYKAL (O Flyuoritovykh Mestorozhdeniyakh Zapadnogo Zabaykalya). 1959, 5p.
Order from RIA $7.50 RIA R-1-2

Trans. of Razvedka i Okhrana Nedr (USSR) 1959 [v. 25] no. 7, p. 5-9.

Fluorite deposits in western Trans-Baykal are described. The relationship between ore deposition and tectonics is noted and the most favorable tectonic structures are described. The deposits occur in metamorphosed Precambrian rocks, Caledonian granitoids, upper Paleozoic porphyrites and in the sediments of the Gusinoozero suite. Lithologic relationships are noted, as are indicative surface mineral associations and structures. Deposition of the fluorite occurred in stages, evidenced by variation in color, texture and mineralogic relationships. This belt of deposits may extend northeast into the structurally analogous Chitin region. (Research International Associates abstract)

Vinogradov, A. P. and Ronov, A. B.
EVOLUTION OF THE CHEMICAL COMPOSITION OF THE CLAYS OF THE RUSSIAN PLATFORM. [1959] 18p.
Order from ATS $24.60 ATS-67M37R

Trans. of Geokhimiya (USSR) 1956, no. 2, p. 3-18.

Oceanography

Alekhina, L. S. and Lugovenko, S. P.
EXPERIMENTAL WORK ON THE ORGANIZATION OF A SHIP'S NETWORK [Opyt Organizatsii Raboty Sudovoy Seti]. 28 Dec 59, 3p. JPRS: L-1153-N.
Order from OTS $0.50 60-11145

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 33-34.

The ship network of the Murmansk Hydrometeorological Service Administration in the Barents Sea consists of 65 stations. They are installed on 8 trawlers in the northern part of the Atlantic Ocean, and on 10 hydrological ships, 31 fish-searching ships, 7 floating fishing bases, and 2 cargo ships of the Ministry of the Navy of the USSR. Observations are also carried out from 7 stations by professional observers. Provisional stations are established on ships used for fishing from time to time. The ship stations are equipped with hydrometeorological instruments by the Navy via the navigation chambers, and the testing of instruments is made by the Testing Office of the Hydrometeorological Service Administration. The instruments are checked after each voyage by the inspectors. A double set of instruments is available on every ship. Telestations are installed on 12 ships. Ships return to harbour only after 1 to 5 months, and are visited by the inspector after every return. A full inspection of every ship is made 2 or 3 times a year, and a record is set up. The work for the ship station is controlled by the inspector during the voyage. The inspectors are present daily at the service relief in the weather office. If errors are detected, the inspectors give instructions to the navigation observers by radio. Reception of information from ships is not yet regular at present. The measures taken in this respect had the consequence that 48 stations are already working "well", and only 17 "satisfactorily". Early in 1958, the Administration of the Fishing Industry of the Murmansk sovnarkhoz worked out a wage system for the observing personnel to encourage good observation results, and their reporting in due time to the coast.

Dremlyug, V. V.
ON RADAR SURVEYING SEA CURRENTS AND ICE. 8 Feb 60, 5p. 1 ref. JPRS: L-1200-N.
Order from OTS $0.50 60-11261

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 10, p. 38-39.

General methods are recommended.

Physics of the Atmosphere

Grigauz, K. I.
ROCKET MEASUREMENTS OF THE ELECTRON CONCENTRATION IN THE IONOSPHERE USING AN ULTRA-SHORTWAVE DISPERSION INTERFEROMETER. [1960] 6p. 8 refs.
Order from MDF $3.00 MDF G-169

Trans. of Iskusstvennyye Sputniki Zemli (USSR) 1958, no. 1, p. 62-66 (first pub. in Akademiya Nauk SSSR. Doklady, 1958, v. 120, no. 6, p. 1234-1237).
Other translations are available from OTS $0.50 as 59-11940, TG 230-T72, 12 Mar 59 [8]p.; from OTS $0.50 as 59-11375, JPRS(DC)-L-1207, 11 June 59, 7p. and from LC or SLA mi$1.80, ph$1.80 as 59-19137, DSIR LLU M. 256 [1959] [4]p.

Analysis of preliminary rocket sounding data obtained from altitudes up to 473 kilometers indicates that there is no sharply defined E-layer. Altitude distribution curves of electron densities based on data gathered from a number of rocket flights at different times are compared.

Krassovskiy, V. I., Shklovskiy, I. S. and others.
DETECTION IN THE UPPER ATMOSPHERE OF ELECTRONS WITH ENERGIES ~10 kev BY MEANS OF THE THIRD SATELLITE (SPUTNIK) (Obnaruzheniye v Verkhney Atmosfere Elektronov s Energiey Okolo 10 Kev na tret'yem Sputnike) tr. by A. Pingell. 1960 [14]p. 26 refs. N R L Trans. no. 773.
Order from OTS $0.50 60-21073

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1959, no. 8, p. 1157-1163.

Results are presented of measurements of the electron fluxes with energies ranging from 10 to 40 Kev. These measurements were carried out with the aid of the third Soviet artificial earth satellite (sputnik), using two fluorescent shields (ZnS and activated Ag) covered with thin absorbing aluminum foils of different thickness, the emission of which was recorded by photoelectron multipliers. The intensity of the fluxes increase sharply with decrease of energy. The energy flux at night at high latitudes reaches several tens of erg/cm^2·sec·sterad. (See also 60-21182)

Krassovskiy, V. I., Shklovskiy, I. S. and others.
DETECTION OF ELECTRONS WITH ENERGIES OF ABOUT 10 KILOELECTRON VOLTS IN THE UPPER ATMOSPHERE WITH THE AID OF THE THIRD "SPUTNIK" (SATELLITE) (Obnaruzheniye v Verkhney Atmosfere s Pomoshch'yu Tret'yego Sputnika Elektronov s Energiyey Okolo 10 Kev) tr. by A. Pingell. Dec 59, 7p. 18 refs. N R L Trans. no. 774.
Order from OTS $0.50 60-21182

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 127, no. 1, p. 78-81.

See 60-21073

Megrelishvili, T. G.
ON THE POSSIBILITY OF INVESTIGATING AEROSOL LAYERS BY THE CREPUSCULAR METHOD, tr. by G. D. Heath. 19 June 59 [9]p. 15 refs. Porton Trans. no. 227; M785.
Order from LC or SLA mi$1.80, ph$1.80 59-22606

Trans. of *Akad[emiya] Nauk SSSR. Izv[estiya]. Ser[iya] Geofiz[icheskaya] 1958, no. 4, p. 560-563.

A criticism is presented of the method employed by E. K. Bigg in interpreting his crepuscular observations concerning dust layers in the atmosphere (Nature, no. 4498, 1956).

Pletnev, V. D.
PENETRATION OF FAST CHARGED PARTICLES FROM THE UPPER ATMOSPHERE INTO THE

IONOSPHERE (Proniknoveniye Bystrykh Zaryazhennykh Chastits iz Verkhney Atmosfery v Ionosferu) tr. by A. Pingell. 3 Dec 59 [5]p. 9 refs. N R L Trans. no. 771.
Order from OTS $0.50 60-21043

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1959, no. 8, p. 1164-1166.

The oscillating motion of charged particles captured by the terrestrial magnetic field is examined. The direction of motion in fluxes of such oscillating particles will have a sharply expressed spatial anisotropy as a result of the absorbing action of the lower atmospheric layers.

ENGINEERING

DIGEST OF SOVIET TECHNOLOGY, 1960 [VOL. 1] NO. 11.
Order from EIS $18.00/Surface mail
$22.00/Airmail

Consists of translations on recent technological developments in the USSR and East European countries selected from periodical and non-periodical literature from these countries.

Englin, A. N., Skribnskaya, M. B., and Trakhtenberg, E. A.
METHOD FOR OBTAINING THE INSECTICIDES CHLORDANE AND HEPTACHLOR. [1959].
Order from LSB $2.50 LSB-106

Trans. of Russian patent 110387, issued 22 May 57.

Kudymov, B. Ya. and Ushakov, A. V.
PHOTOELECTRIC INSTRUMENT FOR MEASURING LUMINESCENCE ALONG DRILL-HOLE WALLS. (Fotoelektricheskiy Instrument dlya Issledovaniya Luminestsentsii Stenok Skvazhin). 1959, 3p.
Order from RIA $4.50 RIA R-1-3

Trans. of Razvedka i Okhrana Nedr (USSR) 1959 [v. 25] no. 7, p. 34-36.

An instrument for measuring luminescence is described. The device is illustrated and data obtained from its tests are included. The photoelectric instrument is useful in situations where the efficiency of electric logging is reduced by high salinity. (RIA abstract)

Yarovoy, I. M.
DETERMINATION OF THE METHANE CONTENT OF COAL SEAMS (Opredeleniye Metanonosnosti Plastov Uglya). [1959] [12]p. 1 ref. M 793.
Order from LC or SLA mi$2.40, ph$3.30 59-22599

Trans. of Ugol' (USSR) 1947, v. 22, no. 12, p. 9-13.

Determination of the methane-content of coal seams using hermetically sealed flasks does not reflect the true methane-content, which increases as one passes from the mine face to the interior of the coal mass, up to a certain limit. The true methane-content of coal can be determined with isotherms of desorption and gas-release established in the laboratory as a function of pressure and by means of measurements of methane pressure in holes drilled in the seam at depths beginning at one meter and going beyond the drainage zone. Using this method it will be possible to determine the methane-capacity of a seam in situ, the level of drainage of the zone near the mine face, and changes in it as a function of the rate of progress of the cutting face Most of the methane (20 cubic centimeters per gram) in the sample from the "Derezovka" K_3 seam, which is dangerous because of sudden evolution of gas, is sorbed at a pressure of 10 atmospheres, while in the sample from the "Smolynninovskiy" seam it is absorbed at pressures up to 20 atmospheres. At the same pressures the quantity of free methane is very small. At pressures of 80 to 100 atmospheres the capacity of coal to sorb methane almost disappears. With further pressure increases methane is not sorbed, but is compressed, being in a free state in the fissures and pores of the coal. In the portions of the coal mass near the cutting face there is little pressure, and the methane in them is generally in the sorbed state. The equilibrium between sorbed and free methane is maintained apparently by means of methane which is constantly moving out of the interior of the coal mass as a result of the pressure difference between the coal mass and the cutting face.

Aeronautical Engineering

THE SNECMA C-450 "COLEOPTER" (BEETLE) (S. N. E. C. M. A. C. -450 "COLEOPTERE") tr. by W. E. C. [1959] [4]p. (3 figs. omitted). H-3104 C.
Order from OTS $0.50 59-21030

Trans. of Air Revue (Belgium) 1958, July, p. 383.

The plane has an "ATAR EV" jet, and therefore a thrust of 3,700 kg. According to approximative measurements, it has a length of 9.90 meters and a height (in line of flight) and "wing-span" of 5.60 meters. The maximum diameter of its wing is about 4.15 meters, while it is only 3.80 meters at its entrance and exit. The cabin containing the folding seat, flanked with two air inlets, is located in front of the cylinder forming the cap of the "ATAR EV". An additional air inlet is situated under its lower lip. The bottom and sides of the fuselage contain windows permitting groundward vision. The wings are attached to the fuselage by means of four slightly curved pins. The aircraft is placed in the starting position with the aid of a trailer which makes it possible to place the machine in a horizontal position in order to facilitate its inspection and repair. The "Coleopter" is supported by two shafts which engage the fittings of a semi-circular fork. When the "Coleopter" is on the ground it rests on four small wheels.

Karmanova, L. and Berenson, S.
PREVENTION OF CORROSION ON THE SKIN OF AIRCRAFT (Preduprezhdeniye Korrozii Obshivki Samoleta). Jan 60, 5p. RTS no. 1320.
Order from LC or SLA mi$1.80, ph$1.80 60-15066

Trans. of Grazhdanskaya Aviatsiya (USSR) 1958 [v. 15] no. 3, p. 23.

The main varieties of corrosion and their causes are discussed. Proper methods of handling the skin in the cleaning and washing process are described.

Leontyeva, V. P., Slonimskiy, G. L., and Dranovskiy, M. G.
TESTING OF RUBBERS USED AS SEALS FOR UNITS OF AIRCRAFT HYDRAULIC SYSTEMS UNDER ISOTHERMAL HYDRAULIC COMPRESSION (PRESSURE FROM ALL DIRECTIONS) [AND] INVESTIGATION OF RUBBER COMPENSATORS (SHOCK ABSORBERS). [1959] [61]p. (38 figs. omitted) 15 refs. F-TS-9678/III.
Order from LC or SLA mi$3.90, ph$10.80 59-19477

Trans. of Issledovaniya Nekotorykh Rezinovykh i Plasticheskikh Materialov (USSR) 1957, no. 93, p. 5-20 and 39-63.

Mil, M. L.
HELICOPTERS (Vertolety). [1959] [63]p. F-TS-9638/V.
Order from LC or SLA mi$3.90, ph$10.80 59-16059

Trans. of [Vsesoyuznoye Obshchestvo po Rasprostraneniyu Politicheskikh i Nauchnykh Znaniy] Seriya 4 (USSR) 1957, no. 14, p. 1-39.

Contents:
History of the development of helicopter construction
The appearance and development of autogyros
New phase in the development of helicopters
Struggle to obtain dependability in the designing of helicopters
Single-rotor helicopters
Helicopters of other systems
Application of helicopters to civilian use
Economy of helicopter transportation
Military use of helicopters
Outlook for the development of helicopter design
Helicopter-aircraft ("convertiplanes")

Chemical Engineering

Charvat, V.
THE GRINDING OF COAL FOR THE PRODUCTION OF COKE. II. DISINTEGRATING AND IMPACT HAMMER TYPE MILLS. [1960].
Order from BISI £6 15s BISITS 1581

Trans. of Paliva (Czechoslovakia) 1956 [v. 36] no. 6, p. 185-192.

The effect was described of different variables affecting the output and fineness of grinding with disintegrator type and impact hammer mills. The main considerations were established and expressed with the aid of tables and graphs. Conclusions were drawn from the results obtained regarding the suitability of different types of coal and the advisability of taking certain action to improve grinding and control. (Author)

Frolov, A. G.
IMPROVEMENT OF THE MINE STATION, HOISTING AND UNDERGROUND TRANSPORTATION THROUGH THE APPLICATION OF HIGH PRESSURE HYDRAULIC TRANSPORT (Primeneniye Vysokonapornykh Gidrotransportnykh Ustanovok dlya Korennogo Usovershenstvovaniya Poverkhnosti Shakht, Podemov i Podzemnogo Transporta). [1959] [12]p. 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-19353

Trans. of Ugol' (USSR) 1959 [v. 34] no. 6, p. 10-15.

The following plan is proposed as a result of experiments conducted between 1951 and 1958. The coal, concentrated in the vicinity of the mines, should be crushed to a tolerance of 3 to 5 mm, then with the aid of piston pumps or feeding machines and pumps, it will be transported by high-pressure hydraulic pipeline to the coking plant. The coal drying will be performed at the coking plants, rather than in the preparation plants of the different coal basins.

Lebedev, N. N.
PROBLEM LABORATORIES BEGIN SCIENTIFIC PRODUCTION. [1960] 20p. JPRS: 2187-N.
Order from OTS $0.50 60-11236

Trans. of Vestnik Vysshey Shkoly (USSR) 1959 [v. 17] no. 9, p. 57-69.

Activities of the problem laboratories are summarized. The laboratories considered deal with the application of isotopes and radioactive emanations to chemistry and chemical technology, electrosynthesis of organic and inorganic compounds, the synthesis and application of ion exchange resins, the investigation of mass transfer processes, the synthesis of intermediate compounds, and research on heat-resistant glasses and high-polymers.

Civil Engineering

CONSTRUCTION IN THE USSR: SELECTED TRANSLATIONS. 13 Oct 59, 47p. JPRS: 1946-N.
Order from OTS $1.25 59-13939

Contents:
Part I. Building Materials Industry
Raise the Technical Level of Production in the Building Materials Industry Steadily, by I. I. Labed'. Trans. of Stroitel'nyye Materialy (USSR) 1959 [v. 5] no. 7, p. 1-8.

The New System of Administration in the Building Materials Industry, by T. O. Shakhbazyan. Trans. of Tsement (USSR) 1959 [v. 25] no. 3, p. 1-2.

Gigantic Leap Forward, by M. Preskuryakov. Trans of Stroitel'naya Gazeta (USSR) 1959 [v. 23] 19 Aug, p. 2.

Methods for Improving the Construction of Industrial Buildings and Structures and Reducing their Cost, by F. I. Gusov. Trans. of Promyshlennoye Stroitel'stvo (USSR) 1959 [v. 37] no. 7, p. 4.

Utmost Reduction in the Cost of Precast Concrete, by B. Budanov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 1, p. 82-85.

Mass Production of Brick-Concrete Panels Organized, by M. Dikerman. Trans. of Arkhitektura i Stroitel'stvo Moskvy (USSR) 1959, no. 7, p. 14-15.

Implementation of the Decisions of the Plenum of the Central Committee, CPSS. Trans. of Steklo i Keramika (USSR) 1959 [v. 16] no. 8, p. 1-3.

Part II. Construction

Lift the Construction Industry to a New and Higher Level, by V. Kacherenko. Trans. of Stroitel'naya Gazeta (USSR) 1959 [v. 23] 9 Aug, p. 2-3.

DSK-1 [Polyustrov Housing Construction Combine] Builds, by G. L. Kopelevich and B. D. Popov. Trans of Byulleten' Tekhnicheskoy Informatsii (USSR) 1959, no. 7, p. 7-11.

PLANS FOR THE CONTROL OF THE CH'AO, CH'U AND HUAN BASINS. 24 Feb 60, 11p. JPRS: 2234.
Order from OTS $0.50 60-11314

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958 [v. 9] Aug, p. 342-344.

The region is located on the left bank of the lower Yangtze River and lies between 30° and 32°N and 116° 119°E. It is bordered by the Yangtze River on the southeast, and by the Ta-pieh, Huai-yang Mountains, and Huai River basic on the north and west. The total area of the region is 34,500 square kilometers, 94% of which is located in Anhwei Province. The control plans include the elimination of drought and flood, the promotion of agricultural production, the utilization of water power, and the development of local industry.

SOVIET CONSTRUCTION AND BUILDING MATERIALS INDUSTRY: SELECTED TRANSLATIONS. 6 Oct 59, 43p. JPRS: 1923-N.
Order from OTS $1.25 59-13909

Contents:

Part I. Building Materials Industry

Improve Precast Concrete Production Techniques, by M. Pishchik. Trans. from Stroitel'naya Gazeta (USSR) 1959 [v. 23] 26 June, p. 2.

Some Prospects for the Automation of Building Materials Production Processes, by A. Zimin. Trans. of Ekonomika Stroitel'stva (USSR) [1959] no. 6, p. 24-28.

Reconstruction of Cement Plants. Trans. from Stroitel'naya Gazeta (USSR) 1959 [v. 23] 10 July, p. 1,

First Multi-Story Building of Prefabricated Brick Panels Erected. Trans. from Stroitel'naya Gazeta (USSR) 1959 [v. 23] 22 July, p. 4.

Potential for Saving Materials in Transport Construction, by A. Kondrashov. Trans. of Ekonomika Stroitel'stva (USSR) 1959, no. 6, p. 43-52.

Construction and the Construction Industry in the Belorussian SSR in 1959-65, by V. Kamenskiy. Trans. of Kommunist Belorussii (USSR) 1959 [v. 31] no. 5, p. 24-29.

Opportunities for Increasing Labor Productivity in Construction, by A. Treyfeldt. Trans. of Kommunist Estonii (USSR) 1959 [v. 15] no. 5, p. 41-49.

Prospects and Effectiveness of Utilizing Plastics in Construction, by N. Maykov. Trans. of Ekonomika Stroitel'stva (USSR) 1959, no. 6, p. 37-40.

Installation of Vinyl Plastic Pipelines, by A. K. Gefding. Trans. of Novaya Tekhnika Montazhnykh i Spetsial'nykh Rabot v Stroitel'stve (USSR) 1959 [v. 21] no. 7, p. 14-16.

Important Factor in the Further Industrialization of Construction. Trans. of Stroitel'nyye Materialy (USSR) 1959 [v. 5] no. 6, p. 1-2.

Part II. Construction Industry

Value and Cost in Construction, by V. Uspenskiy. Trans. from Stroitel'naya Gazeta (USSR) 1958 [v. 22] 8 July, p. 4.

Statute Concerning the Formation of Groups of Individual Home-Builders. Trans. from Stroitel'naya Gazeta (USSR) 1959 [v. 23] 19 July, p. 4.

Savings in Transportation Cost in Construction Through Reduction of the Weight of Buildings. Trans. of Promyshlennoye Stroitel'stvo (USSR) 1959 [v. 37] no. 6, p. 30-33.

Bolkowski, Jerzy and Markiewicz, Ryszard.
THE FIVE-YEAR PLAN FOR THE CEMENT INDUSTRY. 17 Oct 58, 18p. JPRS(NY)-L-403.
Order from OTS $0.50 PB 141 310T

Trans. of Cement, Wapno, Gips (Poland) 1957, v. 13/22, no. 1, p. 1-7.

French, William Gerald.
PORTABLE PARTITION UNIT AND LOCKING MEANS THEREFOR, tr. by F. H. B. 18 Jan 60, 15p. (10 figs. omitted) 1 ref.
Order from LC or SLA mi$2.40, ph$3.30 60-15093

Trans. of French patent 1,142,370, gr. 7, cl. 3, Int. cl. E 04 b, appl. 23 May 55, granted 1 Apr 57, pub. 17 Sep 57 (appl. filed in U. S. A. 26 Nov 54).

The invention relates to portable devices for assembling panels with posts. The panels consist of opaque lower elements whose opposite lateral edges are releasably fastened to the posts, and transparent or translucent upper elements whose lower edges are releasably supported by the upper edges of the lower elements, and whose opposite lateral edges are connected with the posts. The invention provides means for connecting in a quick and easy manner the opposite vertical lateral edges of the upper panel elements with the posts, as well as elements that engage with the posts so as to hold the panel-supporting devices in engagement with the posts; means for facilitating the mounting of the upper panel elements, engaging them

vertically by sliding along, between them and the opposite vertical edges of the panel elements, slide elements in vertical sliding engagement between the edges of the upper panel elements and the posts; and finally, elements holding the panels, very simple in concept, economical in structure, and very efficient in use.

Kierski, Boleslaw, Korngut, Josef, and Zubelewicz, Michal
MAJOR DIRECTIONS IN THE PRODUCTION OF CONSTRUCTION MATERIALS IN THE CURRENT FIVE-YEAR PLAN. 29 Sep 58, 32p. JPRS(NY)-L-349.
Order from OTS $0.50 PB 141 242T

Trans. of Materialy Budowlane (Poland) 1957, v. 12, no. 10, p. 289-298.

Koller, Ernst.
DISMOUNTABLE WALL WITH VERTICAL METAL POSTS, tr. by F. H. B. 26 Jan 60, 11p. (5 figs. omitted).
Order from LC or SLA mi$2.40; ph$3.30 60-15100

Trans. of Swiss patent 281,053, cl. 4a, appl. 24 Apr 50, registered 29 Feb 52, pub. 3 June 52.

The wall is characterized in that the posts have a profile which on at least two sides has outwardly open grooves.

Li, P'ei-fu.
T'AO HO PROJECT. 14 Dec 59, 12p. JPRS: 2075-N.
Order from OTS $0.50 60-11125

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958, v. 9, no. 12, p. 547-549.

The project for diversion of the Tao Ho to an easterly course for purposes of irrigation and power engineering is described.

Mayer, Friedrich and Kretschmann, Bernhard.
HEAT INSULATING METAL PLATE FOR BUILDING CONSTRUCTION, tr. by C. P. 4 Feb 59, 10p. (12 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13274

Trans. of French patent 884329, gr. 7, cl. 3, appl. 21 July 42, granted 19 Apr 43, pub. 10 Aug 43 (2 appl. for patent and a patent of addition filed in Germany, patent 26 July 41, patent of addition 23 Oct 41) by Leichtmetallbau Regensburg G. m. b. H., Germany.

The plate light sheet metal is composed of two halves in the form of compartments open on one side, joined by connecting means which, at least at the points of contact with the halves of the plate, consist of a non-metallic material, for example of synthetic resin, and keep at a distance from one another the halves of the plate turned toward one another. The edges of the two halves of the plate are engaged in pairs of bars of synthetic material and reinforced, if need be, by metal which are pressed against one another and against the edges of the plate halves by screws. The edges of the two halves of the plate are bent toward the interior at an angle of about 45° and the bars which serve for their assemblage likewise have suitable bent edges so that the means of assemblage are not projected above the external surface of the construction plate. The assembling bars of synthetic material are cemented to one another at their points of contact or welded by their metal parts. A single bar is disposed between the halves of the plate and forms with its edges a closed assemblage or again a rigid frame composed of such bars. The halves of the plate engage by chamfered edges in grooves in the assembling bars and the interstices remaining open are filled with a mass of cement, for instance by a thermoplastic synthetic resin.

Sokolov, A. A.
DEVELOPMENT OF HYDROLOGY IN THE CHINESE PEOPLE'S REPUBLIC. 29 Jan 60, 8p. JPRS: L-1179-N.
Order from OTS $0.50 60-11214

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 46-49.

A survey.

Szejwac, Adam
INCREASING THE EFFECTIVENESS OF INVESTMENTS IN THE CONSTRUCTION MATERIALS INDUSTRY. 27 Aug 58, 9p. JPRS(NY)-L-314.
Order from OTS $0.50 PB 141 199T

Trans. of Materialy Bubowlane (Poland) 1956, v. 11, no. 1, p. 9-12.

Electrical and Electronic Engineering

*AVTOMATIKA I TELEMEKHANIKA (USSR) 1959, V. 20 (Automatics and Telemechanics). [1960]
Order from OTS $0.50, $3.00/6 mo.
Foreign $0.75, $4.50/6 mo.

No. 9, p. 1153-1310, PB 141 096T-15
No. 11, p. 1441-1558, PB 141 096T-14
No. 12, p. 1561-1711, PB 141 096T-16

Consists of abstracts in English.

ELECTRIC DUST SEPARATOR, tr. by F. H. B. 13 Nov 59, 7p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13072

Trans. of French patent 877,056, gr. 14, cl. 6, appl. 18 Nov 41, granted 24 Aug 42, pub. 28 Nov 42 (2 appl. for pat. filed in Germany, viz., 22 Nov and 23 Dec 40) by Siemens-Lurgi-Cottrell Elektrofilter-Gesellschaft M. B. H. für Forschung u[nd] Patentverwertung, Germany.

The spacing of the electrodes and the velocity of the gas in the precipitation zone free from the spouting discharges are chosen in such a way that the Reynolds number therein remains below about 16,000 and a laminar flow between the electrodes is assured. Since there are no spouting discharges in the condensation or precipitation field and consequently no turbulence can originate, the laminar flow is not disturbed from the moment on when it has been established. Therefore the efficient field length, for the same degree of purification, is reduced.

ELECTRIC TECHNOLOGY U. S. S. R., 1959, VOL. 3, P. 313-461. Feb 60, 1v.
Order from PP $14.00, $56.00/year

Trans. of Elektrichestvo (USSR) 1958, no. 7, p. 14-19, 25-30, 42-45 and 55-56; no. 8, p. 5-11, 37-41, 46-49 and 75-79; no. 9, p. 1-7, 30-34, 39-42 and 47-52. Abstracts are included of the papers which are not translated in full.

*ELEKTROSVYAZ' (USSR) 1958 [V. 12] NO. 8, P. 3-80 (Electrical Communications). [1960] 1v. SOV-106-59-8-(1-12)/12.
Order from OTS $0.60, $3.50/6 mo. PB 141 099T-18
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

RADIO ENGINEERING, 1959, VOL. 14, NO. 4. Feb 60, 114p.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Radiotekhnika (USSR) 1959, v. 14, no. 4, p. 3-[80].

*RADIOTEKHNIKA (USSR) 1959, V. 14, NO. 9, P. 3-81 (Radio Engineering) [1960] 1v. SOV-108-14-9-(1-13)/13.
Order from OTS $0.50, $3.00/6 mo. PB 141 105T-16
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

*RADIOTEKHNIKA I ELEKTRONIKA (USSR) 1959, V. 4, NO. 12, P. 1951-2100 (Radio Engineering and Electronics). [1960] 1v. SOV-109-4-12-(1-25)/25.
Order from OTS $0.70, $4.00/6 mo. PB 141 106T-20
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

Avilov, G. V.
METHODS OF IMPROVING THE QUALITY OF THE SURFACE OF MAGNETIC SOUND CARRIERS. [1959] 11p. 5 refs. T-3086.
Order from LC or SLA mi$2.40, ph$3.30 60-14174

Trans. of Tekhnika Kino Televideniya (USSR) 1957, no. 6, p. 74-78.

Methods of improving the quality of the surface of sound carriers used by various companies, as well as some technological devices for obtaining a magnetic layer with a good glossy surface, are described. (Author)

Ch'en Hsing-pi.
ON THE PROBLEMS OF STORAGE TIME OF DRIFT TRANSISTOR OPERATING IN SATURATION REGION. 11 Jan 60, 33p. 9 refs. JPRS: L-1160-N.
Order from OTS $1.00 60-11176

Trans. of Acta Physica Sinica (Chinese People's Republic) 1959, v. 15, no. 7, p. 353-367.

An equivalent circuit of transistors operating in saturation region is suggested. This circuit contains a transistor operating in active region and a diode biased in forward direction. By using this equivalent circuit, the physical meaning of storage time of transistors may be explained more intuitively. With this, the storage time in drift transistor, which is common base connected, has been investigated. By solving the continuity equation, the steady state and the transient components of the densities of minority carriers in diode near the p-n-junction is obtained. By setting these two components equal in magnitude and opposite in sign, we get a formula, from which the storage time may be determined. The storage time in some special cases has been calculated. The results show that the storage time depends upon the life time of minorities and the surface recombination velocities both in base region and in collector region. This may be a guide for design a transistor with more short storage time. (Author)

Chu, Yen-lung.
ELECTRIC POWER CONSTRUCTION RESEARCH AND TECHNIQUES IN COMMUNIST CHINA. 17 Feb 60, 7p. JPRS: 2248.
Order from OTS $0.50 60-11300

Trans. of K'o Hsüeh Hsin Wen (Chinese People's Republic) 1959, no. 32, p. 3-4.

A survey.

Drabkin, A. L.
MULTIDIPOLE ANTENNA OF ROTATING POLARIZATION. [1959] 5p.
Order from MDF $2.50 MDF D-132

Trans. of *Radiotekh[nika] (USSR) 1959, v. 14, no. 8, p. 3-7.

A new, slightly-directed antenna of rotating polarization, proposed by the author, is described. The antenna consists of horizontal and vertical dipoles with currents in definite phase relations. The antenna field intensity has a rotating polarization which is almost circular in all directions in the space. The directivity pattern in any plane passing through the antenna axis is a cardiod, which guarantees the surveyal of approximatley a hemisphere of the space. (Author)

Grineva, K. I.
SURFACE WAVE ANTENNA WITH A SWINGING BOOM, tr. by Morris D. Friedman. Dec 59 [12]p. 1 ref. AFCRC-TN-60-105; G-165.
Order from LC or SLA mi$2.40, ph$3.30 60-15453

Trans. of *Radiotekhn[ika] (USSR) 1959, v. 14, no. 10, p. 15-22.

The possibility is considered of constructing a double surface wave antenna. The peculiarities of double antennas are investigated: the narrowing of the directivity pattern and the swinging of the beam because of the change in phase of the supply voltage. Results are presented of an experimental check of a circular double surface wave antenna with a small phase velocity lag as are also certain computational formulas. The experimental development of an apparatus in the form of a radial line to excite surface wave antennas is also described. (Author)

Ivanov, V. N. and Kubikov, V. V.
PROTECTIVE SCREENING OF LIGHT-CURRENT CABLES AGAINST DANGEROUS INTERFERENCE FROM EFFECTS OF 110 kV CABLES (Zashchitnoye Yekranirovaniye Slabotochnykh Kabeley ot Opasnogo Vliyaniya Kabeley 110 kV). Dec 59, 17p. RTS no. 1217.
Order from LC or SLA mi$2.40, ph$3.30 60-13434

Trans. of Elektricheskiye Stantsii (USSR) 1958 [v. 29] no. 9, p. 40-43.

A proposal is made to lower the dangerous electromagnetic effect of 110-kv cables on signalling and communication cables, by using additional screening in the form of a separate steel tape in contact with the light-current cable. Calculation shows that the method makes completely unnecessary the use of dischargers on the conductors of light-current cables.

Jakubowski, J. L.
ELECTRIC POWER ENGINEERING MEETING OF THE POLISH ACADEMY OF SCIENCES ORGANIZED TOGETHER WITH THE ASSOCIATION OF POLISH ELECTRICAL ENGINEERS, 19-22 MAY 1958. 23 Oct 58, 4p. JPRS(NY) rept. no. 825.
Order from OTS $0.50 PB 141 318T

Trans. of Przeglad Elektrotechniczny (Poland) 1958, v. 34, no. 2/3, p. 45.

Kuhrt, Friedrich
PROPERTIES OF HALL-EFFECT GENERATORS (Eigenschaften der Hallgeneratoren) ed. and tr. by F. A. Raven, Science Translation Service. Dec 57 [21]p. 6 refs. STS-274; Bureau of Ships Translation 645.
Order from LC or SLA mi$2.70, ph$4.80 59-12033

Trans. of Siemens Zeitschrift (Germany) 1954, v. 28, no. 8, p. 370-376.

A survey of the electrical properties of Hall-effect generators is given. The secondary effects, which accompany the actual Hall effect, are discussed exhaustively and methods are discussed with the aid of which it is possible to extensively eliminate or suppress these disturbing secondary effects. By imbedding and grinding-thin units, the output voltage of a Hall-effect generator may be increased appreciably. (Author)

Lesota, S. K.
ON A METHOD OF MEASURING THE MUTUAL CORRELATION OF AMPLITUDE AND FREQUENCY FLUCTUATIONS OF A REAL GENERATOR BY THE BERSHTEIN METHOD. [1959] 8p. 8 refs.
Order from MDF $4.00 MDF L-131

Trans. of Moscow U. Vestnik. [Seriya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959, v. 14, no. 1, p. 109-116.

In an analysis of the influence of frequency dispersion of the transmitting line on a sinusoid with random amplitude and phase modulation, the expression

$$V_2(t) = V_0 [1 + m(t - \tau)] \sin [\omega_0 t - \beta_0 l + \varphi(t - \tau)]$$

for the output signal of a delay line with linear frequency dispersion was derived which shows that the delay time for the fluctuating components is a group delay time at the fundamental frequency ω_0, i. e., the fluctuations seem to lag behind the phase of the carrier frequency ω_0. This can be explained by the spectral components of the oscillations, found by using the Fourier integral, being certain averages in time. The group delay time for amplitude and frequency fluctuations thus obtained enters into an expression that was derived for the spectral density of the total signal, in agreement with measurements presented by V. S. Troitskiy and V. V. Khrulev (Radiotekh. i Elektron. 1; 831, 1956).

Meinke, Hans Heinrich.
ARRANGEMENT IN REPEATER SET FOR OPTIONAL SUPERIMPOSITION OF A RADAR IMAGE WITHOUT FIXED TARGET ECHO ELIMINATION ONTO A RADAR IMAGE WITH FIXED TARGET ECHO ELIMINATION, tr. by F. H. B. 4 Jan 60, 7p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15096

Trans. of German Auslegeschrift (DAS) 1,040,625, cl. 21a4-48/03, Int. cl. H 04p, of pat. appl. P 19406 VIIIa/21a4, filed 1 Oct 57, laid open to public inspection 9 Oct 58, by Pintsch-Electro G. m. b. H., Konstanz.

From the series of pulses corresponding to the radar image without fixed target echo elimination a series of pulses of the same amplitude is obtained by amplitude limitation or regeneration. This series is added in a desired amplitude ratio to the series of pulses corresponding to the radar image with fixed target echo elimination; an amplitude limiter (clipper) provided in the repeater set then permits indication only of those signals of this combined pulse series whose amplitude exceeds an adjustable minimal value.

Snarskiy, A. A.
EFFECT OF CONTACT-TROLLEY NETWORK ON COMMUNICATIONS LINES AND CENTRAL SIGNAL BLOCKING. 11 Feb 60, 14p. JPRS: 1170-D.
Order from OTS $0.50 60-31051

Trans. of Avtomatika, Telemekhanika, i Svyaz' (USSR) 1959, no. 3, p. 11-15.

Information is surveyed on the electrical and the magnetic effects and methods for computing them.

Solodyazhnikov, N. N.
RADAR. [1959] [189]p. (101 figs omitted). F-TS-10088/III.
Order from LC or SLA mi$8.40, ph$28.80 60-13116

Trans. of mono. Radiolokatsiya, Moscow/Leningrad, 1956, chap. 6-7, p. 121-185 and chap. 10-11, p. 304-421.

The chapters included in the present translation are devoted to: Radar antennas; methods of taking bearings on targets and of sweep scanning; radar receivers; and general oscillators for radar transmitters.

Stanimirovitch, D.
ALKALINE BATTERIES WITH FRITTED PLATES (Accumulateurs Alcalins à Plaques Frittées). [1959] [23]p. (foreign text included) 1 ref.
Order from SLA mi$2.70, ph$4.80 60-14112

Trans. of Revue du Nickel (France) 1958, Apr/June. p. 39-46.

Mechanical Engineering

Dobrynin, O. N. and Mezharayup, G. Ya.
HIGH-POWER BOILER INSTALLATIONS OF THE PODOL'SKII MACHINE CONSTRUCTION FACTORY (Moshchnyye Kotel'nye Agregaty Podol'skogo Mashinostroitel'nogo Zavoda). Dec 59, 25p. RTS no. 1290.
Order from LC or SLA mi$2.70, ph$4.80 60-13467

Trans. of Teploenergetika (USSR) [v. 6] no. 1, p. 28-37.

Ko, Shao-yen.
SCIENTIFIC CONFERENCE IN COMMUNIST CHINA ON INDUSTRIAL HEAT ENERGY, HEAT TRANSFER AND MASS TRANSFER. 10 Feb 60, 4p. JPRS: 1162-D.
Order from OTS $0.50 60-31046

Trans. of K'o Hsüeh T'ung Pao (Chinese People's Republic) 1959, no. 17, p. 561-562.

The Nanking Engineering College and the Power Laboratory of the Academia Sinica called the conference in Nanking during July. Representatives of more than 30 related scientific organizations, production groups, and schools of higher learning participated in the conference.

Ordnance, Missiles, and Satellite Vehicles

Kotel'nikov, V. A., Dubrovin, V. M. and others.
USE OF THE DOPPLER EFFECT TO DETERMINE THE ORBIT PARAMETERS OF ARTIFICIAL SATELLITES. [1960] 13p. 1 ref.
Order from MDF $6.50 MDF K-204

Trans. of Iskusstvennyye Sputniki Zemli (USSR) 1958, v. 1, p. 50-61.

Seitz, George.
THE INFLUENCE OF THE GEOMETRIC FORMS OF POWDER GRAINS ON THEIR BURNING RATES, tr. by Karl P. Gerhard. July 55 [31]p. 3 refs. Picatinny Arsenal Trans. no. 1.
Order from LC or SLA mi$3.00, ph$6.30 59-12440

Trans. of Sprengtechnik (West Germany) 1952, no. 12, p. 221-227 and Explosivstoffe (West Germany) 1953, no. 1/2, p. 15-18, pub. by Erwin Barth Verlag, Mannheim.

A synopsis is given of the several systems that provide the calculation of the form function from the geometry of the grain as it changes during burning. The corresponding formulae are developed for the most commonly used forms. The form function of the burnt mass fraction z may in general be written as $\beta(z) = (1 - z)^n$. In this formula n is 1/2 for all hollow shapes and long or thin solid prisms, whereas, for spheres, tapered shapes, and prisms in which the three dimensions are nearly equal, it has the value of 2/3. The $k = 1 - (S_1/S_0)^{1/n}$, i.e., from the ratio of the burning areas at the end and at the beginning of combustion.

Wu, Chuang.
THE UNITED STATES GUIDED MISSILE CAN BE DEALT WITH (Mei Chih Tao T'an) tr. by Staley. [1959] [6]p. H-3861.
Order from OTS $0.50 59-21140

Trans. from Chieh Fang Chun Chan Shih (Chinese People's Republic) 1958, 26 Oct.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

Bruyev, S. N.
THE STORAGE OF FRESH APPLES AT BELOW-ZERO TEMPERATURES. Feb 60 [65]p. 38 refs. RTS 1185.
Order from LC or SLA mi$3.90, ph$10.80 60-15555

Trans. of mono. Khraneniye Svezhikh Yablok pri Temperaturakh Nizhe Nulya, Moscow, 1958, p. 1-64.

The present paper is devoted to the study of the effects of below-zero temperatures on the quality of fresh apples during prolonged storage. It presents experimental data obtained in 1951 - 1957 in the storage of experimental batches of apples in the cold stores of the G. V. Plekhanov Institute of National Economy (Institut narodnovo khozyaistva imeni G. V. Plekhanov) and at the town base No. 4 of the Mosgorplodoovoshch reserve stores for fruit. The bulletin has been prepared for experts in the science of commodities of medium or high qualification. The material will be of certain interest to students of commercial and horticultural colleges and University Departments, as well as to research workers. (Extracted from the report)

MACHINERY, FABRICATION, AND ACCESSORY EQUIPMENT

SOVIET RESEARCH ON THE KINETICS OF COMBUSTION PROCESSES. Rept. for 15 Aug 58-15 Aug 59. [99]p. 251 refs. PAL 60-12.
Order from OTS $2.25 60-21220

Summary trans. of Russian literature survey covering the period Jan 54-Apr 59.

Soviet open literature on combustion kinetics related to propulsion is surveyed. Attention is directed particularly to theoretical and experimental investigations of (1) flame propagation in laminar and turbulent flow, (2) the chemical kinetics of combustion reactions, and (3) the thermal decomposition of solid explosives with potential solid propellant applications. Approximately 265 Soviet articles and monographs from some 210 authors were examined either from the abstract or, where available, from the English translation.

USSR INDUSTRIAL EQUIPMENT (TRANSPORTATION, CONSTRUCTION, PRODUCTION, AND POWER MACHINERY) [NO. 20, 29 Mar 60]. [1960] [43]p. 113 refs.
Order from LC or SLA mi$3.30, ph$7.80 60-15694

Trans. of unevaluated information selected from Russian-language publications.

Esche, R. and Wenk, P.
A NEW, EFFICIENT ULTRASONIC INSTALLATION OF WIDER CLEANING RANGE FOR LARGE-SURFACE-CLEANING, tr. by E. Gebert. [1959] 8p. 18 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-16345

Trans. of Siemens [Zeitschrift] (West Germany) 1957 [v. 31] no. 9, p. 469-472.

The ultrasonic cleaning installation URG 10 is described, which can apply the sound to a 600 by 300 mm surface with a cleaning effect up to a 300- or 500-mm depth.

Geschka, Hugo Werner.
CONTROL SYSTEM FOR FULLY AUTOMATIC WASHING MACHINES, tr. by F. H. B. 2 Dec 59, 11p. (3 figs. omitted) 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-13279

Trans. of German patentanmeldung [application] P 11968 VII/8d, cl. 8d, gr. 9-60, Int. cl. D 06f, appl. 17 May 54, laid open to public inspection 29 Nov 56, by Maschinenfabrik Peter Pfenningsberg G. m. b. H.

A control system is described for fully automatic washing machines, particularly those equipped with a pole-changing driving motor, which operates by means of a cam-controlled multiple switch that is driven by a mechanism-driving motor and controls the switch elements for the various operations. The system is characterized in that the switch elements controlling the reversing washing operation and those controlling the centrifugal operation are each combined into one switching group and can be alternately switched on and off by means of a switch contact controlled by a cam plate driven by the mechanism.

Kaminskaya, V. V. and Reshetov, D. N.
CALCULATION AND ANALYSIS OF THE RIGIDITY OF THE PORTAL FRAME AND CROSS-RAILS OF VERTICAL BORING AND TURNING MACHINES, PLANO-MILLING MACHINES AND PLANING MACHINES (Raschet i Analiz Zhestkosti Portalov i Poperechin Karasel'nykh, Prodol'no-frezernykh i Prodol'no-strogal'nykh Stankov). Dec 59, 31p. RTS no. 1238.
Order from LC or SLA mi$3.00, ph$6.30 60-13437

Trans. of Stanki i Instrument (USSR) 1957, v. 27[28] no. 9, p. 1-9.

A method is given for the calculation of stiffness of portal and cross-rail systems in portal type machines; the calculations are taken as basis for an analysis of the forms and corresponding dimensions

of the frame and cross-rail elements. General recommendations are made for selecting the optimum form of these elements and some problems of the unification of the portals and rails of plane-milling and planning machines are discussed.

Kluge, F.
THE DIFFUSER CONTROL, tr. by R. E. P.
3 Dec 54, 1p. (3 figs. omitted).
Order from SLA mi$1.80, ph$1.80 60-10257

Trans. of mono. Turboblowers and Turbocompressors, n. d., p. 218-219.

See also 60-10256

Platzer, Rudolf.
TO IMPROVE THE STRUCTURE OF ENGINEERING PRODUCTION. 17 Oct 58, 14p. JPRS(NY)-L-398.
Order from OTS $0.50 PB 141 305T

Trans. of Planovane Hospodarstvi (Czechoslovakia) 1958 [v. 11] no. 3, p. 165-176.

Machine Parts and Mechanisms

MACHINES AND TOOLING, 1958, VOL. 29, SPECIMEN ISSUE. [1959] [64]p.
Order from PERA $12.00/year

Trans. of selected articles from nine issues of Stanki i Instrument (USSR) 1958.

Contents:
Nitriding steel with high-frequency heating, by E. M. Morozova and F. R. Florensova
Pneumatic-hydraulic equipment in machine tool design, by Yu. L. Kuznetsov and V. K. Kudryashov
Grinding limits and pitch calculations for teeth of draw-type broaches, by P. G. Balyura
Chamfering tool for a boring machine, by L. I. Andreev and L. K. Linnikov
The development of ceramics for metal cutting, by V. Y. Rassokhin and M. A. Rura
Modern methods of grinding rectilinear slideways of machines, by M. O. Yakobson
The effect of cooling media on tool life and surface finish, by V. M. Zaitsev
The group machining of components, by L. T. Shtern
A new tool design and the self-curling of chips, by V. Bernavski (Poland)
Improved locking devices for interchangeable bushes for taps, by M. P. Kozlov
Self-locking transmissions in the feed mechanisms of machine-tools, by V. L. Veits
A machine for milling rubber, by C. P. Kuprianov
Hopper loading mechanisms and their classification, by Kh. Ya. Finkel
Ultrasonic erosion and its relation to the vibration characteristics of the tool, by V. I. Dikushin and V. N. Barke
Effect of iron on the properties of the bronze layer of bi-metallic components, by E. M. Morozova, M. N. Leibova and others
Vibration stability of a flattened (cantilever) boring bar, by Yao Li-Pin
Machine for applying abrasive to polishing wheels, by A. G. Tolmachev
Hydro-dynamic calculations for slideways with linear or circular movement, by G. A. Levit
Programme control of curvilinear surfaces, by V. M. Kiselev
Calculation of strength characteristics of cutting edges of tools, by M. I. Klushin

Höhne, E.
SURFACE HARDENING OF GEARS. [1960].
Order from BISI £7 BISITS 1343

Trans. of V[erein] D[eutscher] I[ngenieur]. Z[eitschrift] (West Germany) 1958 [v. 100] 21 Feb, p. 241-248.

Following a summary of the connection between hardness induced by surface treatment and operational needs, the principal hardening methods are described and compared as regards hardness and its distribution. Included are brief descriptions of hardening equipment. (J. Iron Steel Inst. abstract)

Korniyenko, A. M.
METHODS OF INCREASING THE QUALITY OF MANUFACTURE AND OPERATION OF TURBINE GEAR REDUCTORS. [1959] 10p.
Order from ATS $17.85 ATS-12M38R

Trans. of Energomashinostroyeniye (USSR) 1959 [v. 5] no. 2, p. 35-39.

Rotnitskaya, L. G. and Karasev, L. P.
THE USE OF RESISTANCE WIRE STRAIN GAUGES FOR THE MEASUREMENT OF AXIAL STRESSES IN BOLTS (Ispolzovaniye Datchikov Omicheskogo Soprotivleniya dlya Izmereniya Osevikh Usilii v Boltakh). May 58, 4p. C. T. S. no. 449.
Order from LC or SLA mi$1.80, ph$1.80 60-13046

Trans. of Zavodskaya Laboratoriya (USSR) 1956, v. 22, no. 7, p. 856-857.

The suggested method permits an increase in the accuracy and reliability of the measurements and simplifies their further treatment. Three gauges are glued onto the bolt, equally spaced at 120° intervals. The gauges are joined in series and are connected in the usual way to the measuring circuit. Strains caused by the bending moment, being of opposite sign on either side of the neutral axis, will produce changes of resistance of opposite sign in the gauge. The resultant change of resistance will be equal to zero.

Manufacturing Equipment and Processes

SOVIET MACHINE BUILDING: SELECTED TRANSLATIONS NO. 4. 2 Nov 59, 33p. JPRS: 1978-N.
Order from OTS $1.00 59-13984

Contents:
Measuring, Control, and Regulating Instruments (Kontrol'no-Izmeritol'nyye i Reguliruyushchiye Pribory). Partial trans. (suppls. 1-7) of mono. Neftyanoye Oborudovaniye (Petroleum Equipment) Moscow, 1959 v. 6, p. 340-355.
Increase the Quality of Large Diameter Welded Gas and Oil Line Pipe. Trans. of Stroitel'stvo Truboprovodov (USSR) 1959 [v. 4] no. 7, p. 28-30.

*STANKI I INSTRUMENT (USSR) 1959 [V. 30] NO. 9, P. 1-45 (Machine Tools and Tools). [1960] [19]p. SOV-121-59-9-(1-17)/17.
Order from OTS $0.60, $3.50/6 mo. PB 141 121T-5
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Anisimov, N. P.
AUTOMATIC WELDING AND CUTTING AT THE SARATOV HEAVY MACHINE CONSTRUCTION WORKS (Avtomaticheskaya Svarka i Rezka na Saratovskom Zavode Tyazhelogo Mashinostroyeniya). Jan 60, 8p. RTS 1274.
Order from LC or SLA mi$1.80, ph$1.80 60-15057

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 10, p. 29-30.

Baikova, I. P.
DEFORMATIONS CAUSED IN H-BEAMS BY LAYING UNSYMMETRICAL VERTICAL BEADS ON THE WEB, tr. by J. H. Dixon. Mar 59 [14]p. TR.14/59; M 619.
Order from LC or SLA mi$2.40, ph$3.30 59-22630

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 34-42.

The following conclusions may be drawn from the analysis of test data and calculations. The true bend line for a beam (its deflection line) is determined solely by the bending deformations received from the application of welds located unsymmetrically about the neutral axis, and may be computed by the calculation method for determining welding deformations The beam flange bending deformations are determined not only from the total beam bending deformations, but also from the local beam cross-section deformations acquired through the longitudinal contraction of the transverse welds. The beam flange bending deformations represent the sum of the total and local beam deformations. (Author)

Berezin, B. V.
THE PERFORMANCE OF THE GRID OF A HAMMER MILL [O Rabote Reshetki Molotkovoy Drobilki]. [1960]
Order from BISI £3 5s BISITS 1580

Trans. of Koks i Khim[iya] (USSR) 1957, no. 5, p. 51-55.
Another translation is available from LC or SLA mi$1.80, ph$80 as 59-19436, RTS no. 1020, Aug 59 [8]p.

Reversible hammer mills, pulverizing a wet coal charge, operating at 735 rpm (which corresponds to a peripheral hammer speed of 55.8 m/sec) were investigated at the Makeevka coke by-products works. The mill is provided with gratings. Results showed that the grid sections of the hammer mill which are swept and not swept by the hammers do not play an equal part in the evacuation of the product. Most of the product leaves the mill through the openings in the swept sections, only 10 to 15% leaves through the openings in the non-swept sections. Successive sections of the grid work at varying loadings. The smaller the charge, the less is the loading on each successive section. With large charges, the difference in the loading of successive sections is smoothed out. As the material moves through the grid zone, there is a decrease in the size of the largest particles and in the number of the relatively coarse particles passing out of the mill through successive sections of the grid, and hence an increase in fineness of pulverization. A reduction in the distance between the hammers and the grid is accompanied by a reduction in the output of the latter, by an increase in fineness of pulverization and an increase in the amount of dust in the product. The fineness of pulverization deteriorates and the amount of dust in the product increases in proportion to the wear on the hammers. The wear of the grid has practically no effect on the fineness of pulverization, but the amount of dust formed when working with a worn grid is considerably greater than when working with worn hammers.

Bischof, F.
NITROGEN ABSORPTION DURING ELECTRIC ARC WELDING. [1960].
Order from BISI £4 10s BISITS 1556

Trans. of [die] Technik (Germany) 1949 [v. 4] May, p. 229-234.

Repetition and extension of earlier investigations into nitrogen absorption in welding with naked alloy wire. Thirty-one tests with seven groups of various types of alloy on bases of manganese, chrome, nickel, manganese and chrome, manganese and nickel, chrome and nickel, manganese and chrome and nickel. Extension to acid coated electrodes of the same wire composition; further extension to nine acid and basic coated commercial electrodes. Interpretation and partial comparison with earlier tests and details in technical literature. Influence of basicity. Reference to structure. (Author)

Brodskiy, A. Ya.
A NEW ARC-SPOT WELDING METHOD (ELECTRO-RIVET WELDING) (Novyy Sposob Svarki Elektrozaklepkami Proplavleniyem). Feb 60 [12]p.

3 refs. RTS 1262.
Order from LC or SLA mi$2.40, ph$3.30 60-15556

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 10, p. 18-21.

The new method ensures the bore-fusion of sets consisting of more than three component parts.

Gion, L.
SINTERED ALUMINA CUTTING TOOLS. II. FABRICATION FACTORS. [1960].
Order from BISI £7 10s BISITS 1559

Trans. of Silicates Industriels (Belgium) 1958 [v. 23] June, p. 327-332.

Technological aspect of the problem: influence of fabrication variables on sintering. Particular case of sintered alumina cutting tools: results obtained and interpretation. (Author)

Guzov, S. G.
THE MATERIALS AND THERMAL BALANCES FOR OXYGEN CUTTING (Material'nyy i Teplovoy Balans Kislorodnoy Razdelitel'noy Rezki). Dec 59, 17p. 6 refs. RTS 1202.
Order from LC or SLA mi$2.40, ph$3.30 60-13431

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 12, p. 13-17.

Experiment and analysis showed that the basic principles are the same for all types of oxygen cutting (gas flame cutting and surface planing, also arc-oxygen cutting with metal or carbon electrodes). Either a through cut in a metal article or a channel in its surface are produced by (1) the melting of some of the expelled metal by heat from the heating source, and by excess heat from the chemical reaction, and (2) the oxidation of most of the expelled metal by the oxygen jet, principally in the liquid phase. The slag formed, which consists of metal oxides and un-oxidized iron, is expelled from the reaction zone partially by its own weight (when cutting in the flat position), and partially by the dynamic action of the cutting oxygen jet. Although there is always an excess of oxygen in the cut, in practice the metal expelled is never fully oxidized. Even the oxidized part of the slag always contains a certain amount of lower oxide (ferrous oxide), because of the short time available for the reaction.

Kasatkin, B. S., Kareta, N. L., and Darovskiy, G. F.
FINE STRUCTURE (GRANULAR AND SUB-GRANULAR) AND ITS INFLUENCE ON THE IMPACT STRENGTH OF WELDS, tr. by J. H. Dixon. Mar 59 [16]p. 12 refs. TR.13/59; M 590.
Order from LC or SLA mi$2.40, ph$3.30 59-22657

Trans. of Avtomaticheskaya Svarka (USSR) 1958 [v. 11] no. 2, p. 20-29.

The conditions under which welds are made have a substantial effect on the special features of the fine sub-granular structures of mild and low alloy welds Increase in the cooling rate results in increase in the types II and III stresses, and decrease in the dimensions and chemical heterogeneity of the blocks in the sub-granular structure. A very perfect form of ferrite grain block which approaches crystal symmetry is characteristic of slowly cooled weld metals. The rigidity with which a welded joint is clamped only affects the magnitude of the type II stresses. The critical brittleness temperature (transition temperature) of a weld metal, deduced from impact tests at various temperatures, is determined by the special features of the texture and properties of the sub-micro-regions (the blocks) and the micro-regions (the grains). The types II and III internal stresses play a subordinate part, having a definite influence on the course of the plastic deformation process, which precedes the commencement of formation of micro-cracks. (Authors' conclusions)

Kasprzhak, G. M. and Slepushkin, Ye. I.
NEW WELDING GENERATOR CIRCUITS AND THEIR USE FOR WELDING IN SHIELDING GASES (Novye Skhemy Svarochnykh Generatorov i ikh Primeneniye dlya Svarki v Zashchitnykh Gazakh). Dec 59, 16p. 4 refs. RTS no. 1211.
Order from LC or SLA mi$2.40, ph$3.30 60-13432

Trans. of Avtomaticheskaya Svarka (USSR) 1957 [v. 10] no. 3[54] p. 97-104.

The possibility is considered of producing new welding generators by using ordinary low-voltage separate excitation dc machines.

Kontorov, B. M. and Popova, N. V.
WEAR RESISTANT SURFACE LAYER WELDING USING A HORIZONTAL PLATE ELECTRODE. [1960].
Order from BISI £2 5s BISITS 1629

Trans. of a German version of Svaroch[noye] Proizv[odstvo] (USSR) 1959, no. 9, p. 27-30.

Navrotskiy, D. I.
TESTS FOR THE STRENGTH OF MEMBERS WITH ABRUPT CHANGES IN SHAPE AT LOW TEMPERATURES AND IN DIFFERENT STATES OF STRESS, tr. by J. H. Dixon. Mar 59 [13]p. TR.21/59; M 621.
Order from LC or SLA mi$2.40, ph$3.30 59-22628

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 51-57.

The following conclusions are drawn from the tests performed as to the strengths of test pieces with sharp stress concentrations. A severe reduction in the ultimate strength of test pieces with sharp stress concentrations occurs in a specific range of low temperatures. This brittleness range may be typified for static loading by the value of the critical brittleness temperature (transition temperature) (similarly to the critical impact brittleness temperature). Strength decreases abruptly in the critical tempera-

ture range (for St.3 steel, $T_{crit} = -49^{o} \pm 3^{o}C$). Where fracture occurs below T_{crit}, the influence of the initial welding stresses on strength is considerably less than the influence of temperature change. This on the one hand makes determination of the effect of the welding stresses on strength more difficult; on the other hand it proves that under these conditions the relief of welding stresses cannot result in material increase in strength; their relief is therefore of no great practical significance.

Okerblom, N. O. and Savelev, V. N.
THE CALCULATION OF DEFORMATIONS OF MEMBERS WHEN APPLYING TWO FILLET WELDS SIMULTANEOUSLY, tr. by J. H. Dixon. Mar 59 [18]p. 2 refs. TR-18/59; M 618.
Order from LC or SLA mi$2.40, ph$3.30 59-22631

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 23-33.

Rabkin, D. M.
SPECIAL FEATURES OF AUTOMATIC (SEMI-SUBMERGED) ARC WELDING OF ALUMINIUM AND ITS ALLOYS. Mar 57 [15]p. (7 figs. omitted) 14 refs. TR/2; M 576.
Order from LC or SLA mi$2.40, ph$3.30 59-22671

Trans. of Avtomaticheskaya Svarka (USSR) 1955, v. 8, no. 3, p. 13-25.

The low melting point of aluminium, its low specific weight, high thermal conductivity, as well as exceedingly high affinity to oxygen and nitrogen are the causes of several specific features of the fusion welding of aluminium and its alloys. Among the most important technological aspects of the new method of automatic welding of aluminum are: (1) deep penetration of the parent metal, due to the low specific weight of liquid aluminium; (2) the need for special measures to prevent the weld pool from breaking through at the root under the effect of its own weight; (3) the need for reducing the thickness of the layer of flux in order to avoid the transition from arc discharge to the electric slag process, and (4) the necessity for limiting sodium fluoride content in the flux owing to the possibility of the reaction of aluminium with the fluoride and liberation of sodium with the consequent deterioration of the mechanical properties of the weld metal. (Author's conclusion)

Reutov, N. N.
HYDRODYNAMIC CONDITION OF METAL IN CENTRIFUGAL CASTING AND EFFECT ON MACROSTRUCTURE. Feb 60, 4300 words.
Order from HB $9.80 HB-4771

Trans. of Liteynoye Proizvodstvo (USSR) 1959, no. 6, p. 22-27.

Study of variations in macrostructure of centrifugal castings, brought about by various hydrodynamic states of the metal in the spinning mold and how these states can be controlled to suit the technical requirements to be met by the castings. Experimental procedure; data on model mold; use of floats. Nature of the different hydrodynamic states possible in rotating molds. Effect of increasing viscosity coefficient and thickness of metal layer on hydrodynamic state. Effect of rate of pouring the metal into the mold: 'critical' number of revolutions during and after the pouring. Experiments with Wood's alloy; zinc, and chrome-nickel steel. Effect of rotation of metal at speeds on crystal structure, studied by repeatedly increasing and decreasing the rpm of mold and by reversing the spinning direction. Structure of Cr-Ni steel obtained when metal splashes in mold. (HB abstract)

Russo, V. L. and Yefimov, P. N.
THE EFFECT OF LOW-FREQUENCY VIBRATIONS ON METAL CRYSTALLIZATION IN THE WELD POOL AND ON THE PROPERTIES OF THE WELD METAL (Vliyaniye Vibratsii Nizkikh Chastot na Kristallizatsiyu Metalla Svarochnoy Vanny i Svoystva Metalla Shva). Jan 60, 10p. 9 refs. RTS no. 1200.
Order from LC or SLA mi$1.80, ph$1.80 60-13470

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 11, p. 10-12.

One of the principal effects of low frequency vibrations on the crystallization of a weld pool are the pressure impulses set up in the crystallizing metal. Under a certain intensity of these impulses there takes place a collapse of the tips of growing dendrites, whose fragments acting as additional coercive nuclei of crystallization, lead to the breaking up and disorientation of the structure of primary crystallization. In the examined range of vibration systems (25 to 55 cycles/sec and an amplitude of 0.01 to 2.3 mm) an increase of frequency results in a reduction of the primary grain size and a rise in impact strength. Vibrations in the range examined can be used for welding aluminium alloys under normal conditions. Frequencies of 25 to 60 cycles/sec at amplitudes of 0.5 to 1.5 mm can be used for altering the structure of primary crystallization when welding steels at high conditions and during the process of electro-slag welding. In order to bring about a more thorough fragmentation of primary crystallization under normal conditions of welding steel, it is necessary to use elastic vibrations of a supersonic range. (Author)

Shchipkov, M. D.
THE INFLUENCE OF FLUX COMPOSITION ON THE REDUCTION OF SILICON AND MANGANESE DURING THE AUTOMATIC WELDING OF MILD STEEL, tr. by J. H. Dixon. Mar 59 [21]p. 16 refs. TR. 23/59; M 623.
Order from LC or SLA mi$2.70, ph$4.80 59-22626

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 111-122.

In the submerged arc automatic welding of mild steel the silicon and manganese reduction processes are most intense during the transfer of droplets of metal through the welding arc zone. As a result of reduction, the concentrations of silicon and manganese

in the metal droplets increase in direct proportion to the increase in the concentrations of their oxides in the flux. In the automatic welding of mild steel under the usual welding conditions, the reduction of silicon and manganese from the flux and their transfer to the metal take place when the concentration of silica in the flux exceeds 25 and that of MnO exceeds 12 molecular percent. Equations are derived that enable the concentrations of silicon and manganese in the weld metal to be determined with relation to the compositions of the parent metal, electrode wire and flux which are used. These equations also enable the permissible limits of variation in the flux silica and MnO concentrations to be determined in order to ensure (for given parent metal and electrode wire chemical compositions) the required concentrations of silicon and manganese in the weld metal. Carbon, silicon and other deoxidizing alloying elements are oxidized in the weld pool, but with the normal concentrations of oxygen (0.02 to 0.06%) in the automatic welding of mild steel, carbon is the principal element oxidized. There may be reduction in the concentrations of silicon and manganese, owing to oxidation in the weld pool, either where the oxygen concentration is high (the welding of a rusted or highly oxidized parent metal) or where the silicon or manganese concentrations are high ($[Si]_w > 0.3\%$; $[Mn]_w > 1\%$).

Smirnov, F. I. and Budylin, M. M.
MECHANIZATION OF PRODUCTION LINES FOR SHELL CASTING (Mekhanizirovannaya Liniya Obolochkovogo Lit'ya). [1959].
Order from LSB $5.00 LSB-104

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 1, p. 3-7.

Stepanov, A. V.
A NEW METHOD OF PRODUCING MANUFACTURED ARTICLES DIRECTLY FROM A MELT. [1960].
Order from BISI £3 5s BISITS 1638

Trans. of *Vestnik Mashin[ostroyeniya] (USSR) 1959 [v. 39] no. 11, p. 47-49.

Wu, Ju-yang.
PROGRESS IN AUTOMATION RESEARCH AND TECHNIQUES. 17 Feb 60, 3p. JPRS: 2249.
Order from OTS $0.50 60-11301

Trans. of K'o Hsüeh Hsin Wen (Chinese People's Republic) 1959, no. 32, p. 5.

Zaslavskiy, M. L.
VACUUM DIE CASTING (Vakuumnoye Lit'ye Pod Davleniyem). [1959].
Order from LSB $5.00 LSB-101

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 7, p. 6-8.
Another translation is available from HB $4.40 as HB-4612, Jan 60, 2200 words.

A survey.

Zaytsev, Yu. M. and Tyagun-Belous, G. S.
DESULFURIZING CAPACITY OF FLUXES IN ELECTRO-SLAG WELDING [Obesserivayushchaya Sposobnost' Flyusov pri Elektro-Shlakovom Protsesse] Feb 60, 900 words.
Order from HB $2.90 HB-4685

Trans. of Avtom[aticheskaya] Svarka (USSR) 1958, v. 11, no. 11, p. 57-60.

Paucity of data on sulfur removal from weld puddle in electro-slag welding. Experimental setup. Flux compositions studied. Formulas expressing the desulfurizing power. Degree of desulfurization as function of welding current and voltage. Advantages of fluoride-containing fluxes. (HB abstract)

Zeunert, Fritz.
DRIVE FOR ROLLING MILLS, PARTICULARLY COLD STEP TUBE ROLLING MILLS, tr. by J. C. L. 29 Feb 59, 2p. (2 figs. omitted) 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-15551

Trans. of German patent 962,062, cl. 72, gr. 16/01, appl. 14 July 55, appl. announced 25 Oct 56, grant announced 4 Apr 57, pub. 18 Apr 57, by Mannesmann-Meer Aktiengesellschaft.

The drive, with arrangement for balancing the mass acceleration outputs, is characterized in that the balancing masses are linked with additional connecting rods on the cranks on which the connecting rods of the roll stand are rotatably mounted, so that the balancing masses carry out a vertical or approximately vertical motion.

Zoppis, Giovanni.
EXTERNALLY COLLAPSIBLE AND OPENABLE METALLIC FRAME FOR PROTECTING, RETAINING, AND ASSEMBLING DEVICES, FIELD AND CAMP TENTS, ILLUMINATION APPARATUS, AND THE LIKE, tr. by P. C. C. 31 Dec 59, 7p. (12 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13284

Trans. of Italian patent 442,987, cl. XVIII, appl. 4 June 48, granted 3 Dec 48, printed Dec 49.

The umbrella-type frame comprizes a short shank which slides toward the outside of the frame inside a fixed sleeve, the shaft being eliminated so that the space in the frame is substantially empty. The device which controls the motions of the short shank in the sleeve is provided outside the frame proper. Means (preferably of the type used in umbrella frames) are provided for holding the short shank in its lower position in the sleeve in order to determine the open position of the frame.

Transport, Traction and Hoist Facilities

Bauernstein, B.
CONCERNING THE INITIATION OF FRONT-WHEEL SHIMMYING THROUGH ROAD UNEVENNESSES.

[1959] 25p. 4 refs.
Order from SLA mi$2.70, ph$4.80 60-14067

Trans. from ATZ [Automobiltechnische Zeitschrift] (Germany) 1959, v. 61, no. 10.

A calculation is made of the effects on the wheel direction caused by driving over an idealized sewer cover.

Gubenko, E. N.
A SIMPLIFIED METHOD OF CALCULATING THE HEATING IN TRACTION MOTORS OF ELECTRIC LOCOMOTIVES (Uproshchennyi Metod Rascheta Nagrevaniya Tyagovykh Dvigatelei Elektrovozov). Dec 59, 6p. 1 ref. RTS no. 1193.
Order from LC or SLA mi$1.80, ph$1.80 60-13429

Trans. of Elektricheskaya i Teplovoznaya Tyaga (USSR) 1958, no. 3, p. 35-36.
Another translation is available from LC or SLA mi$1.80, ph$1.80 as 59-22425, 19 Mar 59, 4p. M-V Trans. no. 2523.

The method described is accurate to within 1^{o} or $2^{o}C$ and uses only the speed-variation curve.

Kloth, W.
STRESS FIELD AS A FUNDAMENTAL TOOL IN CRANE DESIGN. [1960].
Order from BISI £4 10s BISITS 1628

Trans. of Stahl u[nd] Eisen (West Germany) 1960 [v. 80] 4 Feb, p. 159-164.

Knowledge of stress fields as a fundamental requisite in crane design and design calculations. Reduction in crane weight and greater economy of materials in use. Local design in the light of specific stress fields. Determination of stress fields. Examples on the proper use and evaluation of stress fields. Avoidance of unfavourable stress peaks and of stress peaks defying calculation on a welded nodal point with an open profile. Design of nodal points of rectangular hollow sections and gusset plates, deviating only slightly from calculated values. Stress peaks caused by local welded-on straps, thereby doubling the stress level. Impossibility of expressing stress distribution in fields containing stiffening plates in mathematical form. (Author)

Lbov, G. F.
MECHANIZATION AND AUTOMATION OF WELDING IN THE AUTOMOBILE INDUSTRY [Mekhanizatsiya i Avtomatizatsiya Svarki v Avtomobil'noy Promyshlennosti]. [1959].
Order from LSB $7.50 LSB-102

Trans. of [Svarochnoye Proizvodstvo] (USSR) 1958, no. 4 [p. 5-10].

Information is presented on welding methods and special welding equipment used at the Gor'kiy Automobile Plant.

Loskutov, V. I.
THE AUTOMATIC CONTROL BY MEANS OF MATHEMATICAL MACHINES OF THE HAULING OF A TRAIN BY A LOCOMOTIVE (Avtomaticheskoye Upravleniye Poyezdnoy Rabotoy Lokomotivov pri Pomoshchi Matematicheskikh Mashin). Jan 60, 15p. RTS no. 1312.
Order from LC or SLA mi$2.40, ph$3.30 60-13476

Trans. of Priborostroyeniye (USSR) 1958, no. 4, p. 1-5.

A model of an "automatic motorman" intended for an $S\frac{5}{3}$ railcar unit is described which was tested on the Kuibyshev-Bezymyanka line in November, 1957. These preparatory tests showed that this system of automatic control of train haulage was completely practicable and capable of carrying out all the functions necessary for automatic control. All the test runs of the railcar unit were made under automatic control without the intervention of the motorman. The automatic control system drove the train according to the predetermined movement chart, working out unaided the necessary speeds for this; it stopped the train with two-stage braking, responded to both permanent and temporary speed restrictions, and worked out for itself the coefficients of resistance to movement.

Ogliari, Gustavo.
SUSPENSION DEVICE FOR MOTOR VEHICLES PROVIDED WITH TELESCOPIC SHOCK ABSORBERS, tr. by P. C. C. 7 Jan 60, 3p. (5 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15091

Trans. of French patent 1,044,393, gr. 10, cl. 1, appl. 2 Nov 51, granted 17 June 53, pub. 17 Nov 53 (appl. in Italy 7 May 51).

The device is characterized by a coil spring arranged around each telescopic shock absorber, collars provided with stop members for the ends of the spring being arranged at the upper and lower ends of the shock absorber, so as to increase the flexibility of the suspension. The collars are fixed to the shock absorbers by screwing. The stop member carried by the upper collar consists of a round iron ring welded on said collar. The stop member carried by the lower collar consists of a cup which forms an integral part of said lower collar. The spring arranged around the telescopic shock absorber is fixed to the two ends of said shock absorber, so that said spring can operate under tension or under compression. Each of the cylindrical elements of the collar telescopic shock absorber is provided with projections or lugs which carry bolts or hook members designed to hold the ends of the spring.

Orlova, T. I.
PRODUCTION OF CYLINDER BLOCKS FOR AUTOMOBILES FROM ALUMINIUM ALLOY BY CASTING UNDER PRESSURE (Proizvodstvo Blokov Tsilindrov iz Alyuminiyevogo Splava Lit'em pod Davleniyem dlya Avtomobiley). May 58, 4p. C. T. S. no. 468.
Order from LC or SLA mi$1.80, ph$1.80 60-13050

Trans. of Liteynoye Proizvodstvo (USSR) 1957, no. 6, p. 7-8.

The cold pressure chamber at the Doyler Jarvis works (USA) is described.

Pevzner, Ya. M.
SELF-COMPENSATING MOTOR-VEHICLE SUSPENSIONS (Avtomobil'nye Podveski s Korrekturuyushchimi Prozhinami). July 58, 16p. C. T. S. no. 490.
Order from LC or SLA mi$2.40, ph$3.30 60-13322

Trans. of Avtomobil'naya Promyshlennost' (USSR) 1956, no. 12, p. 22-25.

The use of compensating springs is a simple means of constructing a suspension with non-linear characteristic, the stiffness of which will vary according to a required law. It is evident that this type of suspension will be adopted in the home motor car industry. In particular, a suspension with compensating springs has been adopted for the new omnibus LA3-695 of the Lvov Omnibus Factory. (Author's conclusions)

Pospelov, V.
THE AUTOMATIC MOTORMAN (Avto-mashinist). Jan 60, 8p. RTS no. 1313.
Order from LC or SLA mi$1.80, ph$1.80 60-15065

Trans. of Tekhnika Molodezhi (USSR) 1958 [v. 26] no. 12, p. 35-36.

An autobiographical account is presented of a trial ride on an electric train controlled by a computer instead of a motorman.

Steiner, Erwin.
SOUTH AFRICAN RAILWAYS (S. A. R.) (Die Sudafrikanischen Eisenbahnen). [1958] [23]p. H-2397.
Order from OTS $0.75 59-11887

Trans. of Schwiezerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, 1957, no. 3, p. 213-233.

Topics headings are (1) historical background, (2) the extent and importance of South African Railway net, (3) tariffs (rates and fares), (4) electrification of lines, (5) locomotives, passenger and freight cars, (6) finances, (7) administrative organization, (8) recruitment, training, and strength of the railroad personnel, (9) the track-highway problem, and (10) plans for further expansion of South African Railways

Zorov, B. I.
INTERDEPENDENT SUSPENSION OF THE DE PONTIAC AUTOMOBILE (ABSTRACT) (Vzayimozavisimaya Podveska Avtomobilya De Pontak). June 58, 4p. (1 fig. omitted) C. T. S. no. 491.
Order from LC or SLA mi$1.80, py$1.80 60-13228

Trans. of Avtomobil'naya Promyshlennost' (USSR) 1957, no. 3, p. 46.

MATERIALS

Lantsevitskaya, S. L., Neverova, A. K., and Ter-Grigoryan, Yu. N.
THE DEFORMATION OF GEL CEMENT DURING PERFORATION [Deformatsiya Gel'tsementnogo Kamnya pri Perforatsii]. [1959] 3p.
Order from ATS $6.00 ATS-45M38R

Trans. of Neftyanoye Khoz[yaystvo] (USSR) 1958, v. 36, no. 12, p. 26-28.

Marschall, H. J.
MAGNETIC PARTICLE INSPECTION AND THE MOST RECENT METHODS OF INDICATION. [1960].
Order from BISI £4 10s BISITS 1567

Trans. of Werkstatt u[nd] Betrieb (West Germany) 1958 [v. 91] Nov, p. 649-653.

The principle is illustrated and equipment is described with samples of test results. (J. Iron Steel Inst. abstract)

Marschall, H. J.
NON-DESTRUCTIVE MATERIALS TESTING, MAGNETIC PARTICLE INSPECTION. III. INNOVATIONS. [1960].
Order from BISI £3 10s BISITS 1590

Trans. of Arch[iv für] Tech[nisches] Messen u[nd] Industrielle Messtechnik (West Germany) 1959, v. 283, no. V 91 191-3, p. 161-164.

Ratts, E. G., Kholmyanskiy, M. M., and Kol'nev, V. M.
TRANSMISSION OF STRESS TO CONCRETE BY THE STEEL IN PRESTRESSED MEMBERS (Peredacha Armaturoy Predvaritel'nykh Napryazheniy na Beton) tr. by M. Slade. 1958 [28]p. Trans. no. 4045.
Order from LC or SLA mi$2.70, ph$4.80 60-15378

Trans. of Beton i Zhelezobeton (USSR) 1958, no. 1, p. 4-13.

Sarapin, I. G.
CORROSION OF WIRE REINFORCEMENT IN DENSE CONCRETE CONTAINING CALCIUM CHLORIDE (O Korrozii Provolochnoy Armatury v Tyazhelom Betone s Dobavkoy Khloristogo Kal'tsiya) tr. by G. N. Gibson. May 59 [5]p. 3 refs. Library Communication no. 897.
Order from LC or SLA mi$1.80, ph$1.80 59-19284

Trans. of Promyshlennoye Stroitel'stvo (USSR) 1958, v. 36, no. 12, p. 21-23.

Tests showed that the addition of only calcium chloride to the concrete mix results in intensified corrosion, when the specimens are stored under severe outside conditions and the protective concrete is 10 mm thick. If 2 percent of sodium nitrite is also added, when the specimens, with a protective concrete cover of 10 and 15 to 20 mm, are stored under severe conditions, the amount of corrosion is markedly reduced. When specimens are stored under normal conditions the reduction of corrosion is from 10 to 50 percent of the amount of corrosion of specimens stored under severe conditions, and the reduction of corrosion is the greater the smaller the addition of $CaCl_2$ to the concrete mix. When 1 percent of $CaCl_2$ and 2 percent of $NaNO_2$ (of the weight of cement) are added, the specimens are stored under normal conditions, and the thickness of the protective concrete cover is 15 to 20 mm, no corrosion of the wire is observed. When the thickness of the protective concrete is increased from 10 mm to 15 or 20 mm the corrosion of the reinforcement is reduced somewhat (from 15 to 40 percent), especially if the content of $CaCl_2$ in the concrete is reduced. The wire is much less corroded on the side remote from the protective concrete cover than on the side at the protective concrete, and with a content of 1 to 2% of $CaCl_2$ in the concrete the area of corrosion is from 7 to 15 percent of the surface of the reinforcement if there is no addition of sodium nitrite and it is from 0 to 4 or 6 percent if 2 percent of $NaNO_2$ (of the weight of cement) is added.

Shestoperov, S. V. and Panfilova, L. I.
THERMAL TREATMENT OF CONCRETE (K Voprosu Termoobrabotki Betona) tr. by M. Slade. 1958 [11]p. (foreign text included) Trans. no. 4046.
Order from LC or SLA mi$2.40, ph$3.30 60-15377

Trans. of Beton i Zhelezobeton (USSR) 1958, no. 1, p. 19-22.

If concrete mixtures of vibrator-ground or fresh cements of high quality (600 or higher) are used with a W/C = 0.35 and are isothermally heated for 6 to 8 hours, the compressive breaking strength of the resulting product is 75 to 80% that of a similar product that is hardened for 28 days under normal conditions.

Turriziani, Renato.
THE PROCESS OF HYDRATION OF PORTLAND CEMENT, I-II, tr. by Carl Demrick. [1960] 48p. (refs. omitted).
Order from SLA mi$3.30, ph$7.80 60-14132

Trans. of l'Industria Italiana del Cemento, 1959, v. 29, no. 7/8, p. 185-189; no. 9, p. 219-223; no. 10, p. 244-246; no. 11, p. 276-280 and 282.

The equilibria of the aqueous systems which are involved in the process of hydration of Portland cement are reviewed and a study is presented of the process of hydration of the pastes of four types of cement of a hydraulic module variable between 2.55 and 2.02 and of a flux module variable from 11.37 to 1.38. The experimental methods employed were X-ray and thermal differential analysis. To facilitate the recognition of the hydrated compounds containing R_2O_3, the pastes were subjected to fractionation with heavy liquids. The two series of pastes, prepared with 30 and 50% of water, were cured in water, in closed tanks, at 18° ± 0.5°C and examined after 7, 8 and 60 days, and after 6 and 12 months. The paste of a fifth type of cement cured in water for 6 years was also examined. Excepting only the reactions in which gypsum participates, each of the mineralogical constituents of the clinker is hydrated with formation of ternary compounds regardless of the nature and quantity of the other phases present. The hydration product consists of calcium hydrate, hydrated calcium silicate deriving from the hydration of the anhydrous silicates, the acicular trisulfate phases (ettringite and trisulfoferrite) and the hexagonal phases consisting of hydrated tetracalcium aluminate and probably the solid solutions $4CaO.R_2O_3(H_2O)$. The hydrated silicate possesses a very low degree of crystallization and therefore the problem whether it should be identified with silicate I or with silicate II seems to be overcome. It possesses structural analogies with these types of hydrated silicates. All of the gypsum originally present in the cement is generally found again in the pastes as trisulfate; in none of the tested samples was it possible to demonstrate the presence of monosulfatic forms. The results obtained have not furnished definite indications on the hydration products of brownmillerite.

Ceramics and Refractories

Kitaygorodskiy, I. I., Rishina, V. A., and Sentyurin, G. G.
PRODUCTION OF FOAM GLASS FROM LOW-MELTING CLAYS. [1959] 6p.
Order from ATS $9.95 ATS-46M37R

Trans. of Khim[iko]-Tekh[nologicheskiy] Inst[itut] Moscow. Trudy (USSR) 1957 [v. 22] no. 24, p. 318-323.
Another translation is available from LC or SLA mi$1.80, ph$1.80 as 59-15810 [1959] [5]p.

The possibility and desirability of forming foam glass directly from raw materials without first making the glass is demonstrated. Conditions were worked out for obtaining foam glass from easily fusible clays and the considerable effect played by fine grinding on the foaming temperature has been established. Foam glass with improved mechanical properties was obtained and can thus be used not only as a heat-insulating material but also as a weight carrying building material. The possibility of obtaining foam glass from Bun'kov clay under factory conditions has been verified. With an addition of 0.5 parts by weight of lampblack, foam glass has been obtained at a temperature of 1,020° with a bulk density of 0.21 to 0.22 g/cc and ultimate strength under compression of 25 to 30 kg/sq cm.

Marants, A. G. and Kamenchik, A. Ye.
AN EXPERIMENT IN THE USE OF FUSION-CAST ZIRCON-MULLITE REFRACTORIES IN THE WATER-COOLED PORTS OF AN OPEN-HEARTH FURNACE (Opyt Primeneniya Plavleno-litykh

Tsirkono-mullitovykh Izdelii v Kessonakh Martenovskoy Pechi). Apr 58, 9p. 7 refs. C.T.S. no. 435. Order from LC or SLA mi$1.80, ph$1.80 60-13045

Trans. of Ogneupory (USSR) 1957, v. 22, no. 4, p. 145-152.

An experimental batch of zircon-mullite refractories, prepared at the Erevan Mullite Plant, exhibits good physical and ceramic properties. The intrinsic defect of these products is their high content of fluxing oxides (about 7 - 7.5 per cent), and their consequent high content of vitreous phase. Testing of the experimental cast zircon-mullite blocks in the water-cooled ports of an open hearth furnace, the first industrial testing of fusion-cast refractories in Soviet ferrous metallurgy, showed that it is possible, in principle, to use such products under severe conditions of service. During service in the ports of an open hearth furnace, wear of the experimental refractories proved greater than that of chrome-magnesite, and particularly of dense periclase-spinel, refractories. In order to devise and perfect manufacturing processes for various types of fusion-cast refractories, and likewise to find economical fields for their application in metallurgy, it is suggested that an industrial unit for the experimental production of such refractories be constructed in the near future at one of the plants of the Glavogneupor group. (Author)

Fuels, Lubricants, and Hydraulic Fluids

Ducommun, Paul.
THE ALTERATION OF STABILIZED WATCH LUBRICATING OILS. [1959] [22]p. (43 figs. 16 tables refs. omitted).
Order from SLA mi$2.70, ph$4.80 59-20096

Trans. of Societe Suisse de Chronometrie. Bulletin Annuel [sic] 1948, v. 2, p. 507-546. (also as Journal Suisse [d'Horlogerie] 1948 [v. 73] p. 93-114 and 1949 [v. 74] p. 139-156)

In certain cases a stabilized watch lubricating oil can quite readily become resinified in a few months. The alteration of stabilized watch lubricating oil is connected with the destruction of the antioxidant. The contact with metals is the principal effective cause. The alteration of the oil is much more rapid in small watches.

Popov, V. A.
DEVELOPMENT OF THE COMBUSTION PROCESS OF MOVING PARTICLES IN NONSTATIONARY HYDRODYNAMIC AND THERMAL CONDITIONS [Razvitiye Protsessa Goreniya Dvizhushchikhsya Chastits v Nestatsionarnykh Gidrodinamicheskikh i Teplovykh Usloviyakh] tr. by B. W. Kuvshinoff. 3 Dec 59, 12p. 6 refs. TG 230-T132.
Order from OTS $0.50 60-21066

Trans. of Akademiya Nauk SSSR. Otdeleniye Tekhnicheskikh Nauk. Izvestiya, 1958, no. 12, p. 90-95.

Under nonstationary hydrodynamic and thermal conditions the combustion of a spherical particle of fuel is characterized by the presence of a distinct initial period during which the magnitude of the specific rate of combustion is greater than that determined from conditions of quasistationary values of α. The duration of the initial period of intensified burning depends relatively slightly on the diameter of the particle (in the range from 4.5- to 2.4-mm diameter). To describe the process in all states it is necessary to consider the change in the coefficient of reaction gas exchange as a function of time on the basis of the solution of the corresponding diffusion equations with internal sources. (Author's conclusions)

Sanin, P. I. and Sher, V. V.
CHEMICAL STRUCTURE OF THE ALKYLPHENOLS AND THEIR ACTIVITY AS DEPRESSANTS (Khimicheskoye Stroyeniye Alkilphenolov i ikh Aktivnost' kak Depressorov). June 58, 6p. 1 ref. C.T.S. no. 488.
Order from LC or SLA mi$1.80, ph$1.80 60-13321

Trans. of Akademiya Nauk SSSR. Institut Nefti. Trudy, 1956, no. 8, p. 180-184.

Eighteen alkylphenols were synthesised, nine of which have not previously been described in the literature. The activity of alkylphenols as additive-depressants is shown to depend on their structure (number and structure of alkyl groups).

Shapiro, M. D., Al'terman, L. S., and Raskina, L. S.
KINETICS OF THERMAL DECOMPOSITION OF COAL (Kinetika Termicheskogo Razlozheniya Uglya) tr. by E. Feigl. [1959] [15]p. (foreign text included) 6 refs. Trans. no. 4223.
Order from LC or SLA mi$2.40, ph$3.30 60-15380

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1957 [v. 2] no. 12, 64-69.

A study of the kinetics of tar and gas formation during thermal decomposition of coal led to a qualitative characterization of the plastic mass. The plastic mass of coal has the properties of a colloidal system. The properties of the plastic mass determine the caking capacity of a coal. Thermal stability is the most important property of the plastic mass. The caking capacity of a coal improves with increasing temperature of decomposition of the plastic mass. The properties of the plastic mass may be changed by adding small quantities of certain substances. This procedure also affects the caking capacity of the coal. The A bitumens of caking coals and certain quantities of fusain and spore matter increase the thermal stability of the plastic mass. The yield of distillate (tar) of a given coal is inversely proportional to the caking capacity. The tar yield of the semi-coking process may be considerably increased by adding certain substances which disturb the colloidal system to caking coals or by extracting the A bitumens. The properties of the plastic mass depend on the composition of the coal. These properties may be changed by blending the coal for the coke oven charge. (Author)

Wiegand, H. and Kloos, K. H.
INFLUENCE OF THE SURFACE BOUNDARY LAYER ON THE FRICTIONAL BEHAVIOUR OF AUSTENITIC MATERIALS IN COLD-FORMING IN THE DEEP-DRAWING PROCESS. [1960].
Order from BISI £2 10s BISITS 1573

Trans. of Metalloberfläche (West Germany) 1959 [v. 13] Aug, p. 229-233.

The instability of austenitic substances to plastic deformation was utilized to study the occurrence of boundary lubrication conditions in deep drawing. The martensite constituents detected radiographically in the boundary layer were used to evaluate qualitatively the friction and wear properties of various high-pressure lubricants. (J. Iron Steel Inst. abstract)

Zabavin, V. I. and Kleymenova, L. A.
THERMAL HYDROLYTIC CLEAVAGE OF THE BASIC ORGANIC MATTER OF COAL (Termogidroliticheskoye Rasshchepleniye Osnovnoy Organicheskoy Massy Kamennykh Ugley). [1959] [11]p. (8 Eng. refs. omitted) 9 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-14011

Trans. of Akademiya Nauk SSSR. Otdeleniye Tekhnicheskikh Nauk. Izvestiya, 1957, no. 8, p. 72-77.

A method was developed for thermal hydrolytic cleavage of the primary organic matter of coal under mild conditions. The method consists essentially in successive heating of the coal and its residues with α-naphthol at 280°C and with 5% KOH solution in a mixture of alcohol and pyridine at approximately 90°C, and separation from the solution of substances of acid and neutral nature. Up to 80% of the organic substance of bituminous coal, types D, G, and PZh (long-flaming, gas, and bituminous boiler coal) can be dissolved and split into its chemical components with 4 to 6 successive treatments. The substance of the coal samples investigated split up as follows: D coal entirely into substances of acid nature, G-D coal into equal parts of acid and neutral products, and PZh coal entirely into products of a neutral nature.

Leather and Textiles

Dudnik, A. I.
AN AERODYNAMIC METHOD OF HOT-DAMPING TOPS AND ROVING. Jan 60, 8p. RTS 1368.
Order from LC or SLA mi$1.80, ph$1.80 60-15061

Trans. of Tekstil'naya Promyshlennot' (USSR) 1959 [v. 19] no. 1, p. 31-33.

The aerodynamic method consists of blowing through the tops or roving, which is in bundles, a mixture of steam, water and air at a given temperature and moisture content. A high-pressure fan is used for blowing the mixture through. This method has been successfully used under factory conditions.

Sporyshev, A. M.
EXPERIENCE IN THE CONVERTING OF A MIXTURE OF COTTON AND CAPRONE (Opyt Pererabotki Smesi Khlopka i Kaprona). Jan 60, 12p. RTS 1367.
Order from LC or SLA mi$2.40, ph$3.30 60-15060

Trans. of Tekstil'naya Promyshlennost' (USSR) 1959 [v. 19] no. 1, p. 27-31.

The experience of the Balashikha Cotton-spinning Factory shows that it is possible to convert a mixture of cotton and 30% caprone successfully on existing equipment. The technical process of converting such a mixture follows perfectly normal lines on all machines. The breakage frequency in spinning is about 130 to 140 breaks per 1,000 spindles per hour. (Author)

Paints and Finishes

PROCESS FOR PREPARING OILY, SICCATIVE BINDERS FOR LACQUERS, tr. by C. P. 30 Sep 59, 6p.
Order from LC or SLA mi$1.80, ph$1.80 59-22278

Trans. of French patent 885886, gr. 14, cl. 2, appl. 12 Sep 42, granted 15 June 43, pub. 28 Sep 43 (appl. filled in Germany 9 Oct 41) by I. G. Farbenindustrie Aktiengesellschaft, Germany.

The process consists of treating with oxygen or gaseous mixtures containing it, solutions of fluent polymerizates of butadiene or its homologues by means of an alkaline metal.

Shosmakovskiy, M. F., Korshak, V. V. and others.
FILM-FORMING MATERIALS BASED ON VINYL ESTERS OF FATTY ACIDS (Plenkoobrazovateli na Osnove Vinilovykh Yefirov Zhirnykh Kislot). July 58, 7p. 11 refs. C. T. S. no. 496.
Order from LC or SLA mi$1.80, ph$1.80 60-13324

Trans. of *Zhurnal Prikladnoy Khimii (USSR) 1957, v. 30, no. 9, p. 1368-1374.

A method was developed for producing film-forming materials by copolymerization of vinyl esters of higher fatty acids with other unsaturated compounds. Fatty acid vinyl esters are especially prone to dissociation at high temperatures. A drying oil material with a low free fatty acid content can only be prepared from the vinyl esters by copolymerization with tung oil (15 percent) because copolymerization takes place at lower temperatures than polymerization. The method developed for synthesis of film-forming materials by vinylation of fatty acids made it possible to establish a practical process for copolymerization of vinyl esters of higher fatty acids with a proportion of tung oil to give a product which dries like linseed oil only after addition of driers. Copolymers of fatty acid vinyl esters with tung oil were used to prepare paints with satisfactory properties suggesting that the synthetic drying oil is a suitable binder for paints capable of replacing oil paint.

SENSITOMETRIC METHOD FOR THE ELECTROPHOTOGRAPHIC PROCESS HAS BEEN RECOMMENDED. [1959] 4p. T-3106.
Order from LC or SLA mi$1.80, ph$1.80 60-14149

Trans. of Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 319-320.

The text of the recommendation is given. The recommendation was presented by professor K. S. Lyalikov at the 43rd. Open Science Meeting of the Leningrad branch of the Commission on the Science of Photography and Motion Pictures of the Academy of Sciences of the USSR on April 24, 1959. The proposed method provides a means of obtaining a quantitative estimate both of the photoelectric properties of light-sensitive semiconductor layers and the photographic properties of the electrophotographic process.

Chartoriyskiy, B. A. and Chel'tsov, V. S.
CHARACTERISTIC DESCRIPTION OF THE PHOTOGRAPHIC ACTIVITY OF DIFFUSING COLOR COUPLERS [O Kharakteristike Fotograficheskoy Aktivnosti Diffundiruyushchikh Komponent Tsvetnogo Proyavleniya]. [1959] 5p. 4 refs. T-3094.
Order from LC or SLA mi$1.80, ph$1.80 60-14157

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 6,. p. 427-429.

The effect of different diffusing couplers on the rate of color development was studied by evaluating the rate of development of the silver image. It was confirmed that the dominating factor determining the kinetics of color development is the activity of coupler based on the combination of the primary products of oxidation of the developer with the formation of dye. Analogous to the proportional relationship of the coefficient of contrast and the logarithm of the concentration of the developer, during the color development the coefficient of contrast of the silver image is changed proportionally to the logarithm of the concentration of the diffusing color coupler in the developer, inasmuch as the process of the color development is continuous and the rate of the first phase of the color development depends equally upon the concentration of the developer and the concentration of the coupler. The activity of diffusing color couplers can be quantitatively characterized by the tangent of the angle formed by the axis of abscissae and the line expressing the dependence of the coefficient of contrast upon the logarithm of the concentration of coupler.

Chernyy, L. A.
INTERNATIONAL STANDARDIZATION OF A METHOD FOR NUMERICAL EXPRESSION OF THE SPEED OF BLACK-AND-WHITE NEGATIVE PHOTOGRAPHIC MATERIALS. [1959] [7]p. 4 refs. T-3104.
Order from LC or SLA mi$1.80, ph$1.80 60-14151

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 313-316.

Differences are explained which exist between (1) GOST 2817-50, used in the Soviet Union; (2) DIN 4512-1957, used in Germany and many other European countries; and (3) ASA PH 2-5-1954, used in the United States, Great Britain, France, Japan, and some other countries. The new proposals are discussed which were presented by the United States delegation at the June 1958 session of the International Organization for Standardization. These proposals differ essentially from the ASA standards and approach the GOST and DIN standards.

Fayerman, G. P.
MECHANISM OF THE REACTION OF ORGANIC ANTIFOGGANTS IN THE DEVELOPER. [1959] 3p. 3 refs. T-2980.
Order from LC or SLA mi$1.80, ph$1.80 60-14154

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 3, p. 235-236.

Motion picture positive and negative (type A) films were developed in a developer consisting of one gram of metol, 5 grams of hydroquinone, 20 grams of anhydrous Na_2CO_3, and 26 grams of anhydrous Na_2SO_3, and water to make one liter, containing various quantities of potassium bromide benzotriazole, 5-nitrobenzimidazole phenyl mercapto tetrazole, and 5-methyl-7-hydroxy-2, 3, 4-triazoindolizine, when the temperature of the developer was 20°C. Exposure, development and measurement of optical densities of sensitometric strips of these films were made in agreement with the GOST standard 2817-50. With the exception of 5-methyl-7-hydroxy-2, 3, 4-triazolindolizine the dependence of the optical density D upon the logarithm of the concentration of organic antifoggants in the developer was linear. The action of these compounds is interpreted from the viewpoint of electrochemical theory of development. In some cases the relationship $D = f(\log C)$ is expressed by a broken line in which the section corresponding to low concentrations of antifoggants is either parallel to the log C axis, or sloping to it at a smaller angle than the section corresponding to higher values.

Galashin, Ye. A.
PHOTOGRAPHIC REVERSAL PHENOMENA. II. PHOTOMETRY OF THE LATENT IMAGE AND THE MECHANISM OF PHOTOGRAPHIC REVERSAL. [1959] 10p. 14 refs. T-3102.
Order from LC or SLA mi$1.80, ph$1.80 60-14153

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 253-258.

The kinetics of formation of the photographic latent image by the effect of long wavelength radiation have been studied by means of a simple differential method of photometry. A continuous increase in the optical density of the latent image, the region of Herschel phenomena and solarization, with long wavelength light has been determined. (Author)

Gorokhovskiy, Yu. N. and Davydkin, I. M.
INVESTIGATION OF THE PROCESSED IMAGE BY DENSITOMETRY. I. SCATTERING OF LIGHT BY DEVELOPED PHOTOGRAPHIC FILMS [Issledovaniya po Densitometrii Pocherneniy. I. Rasseyaniye Sveta Proyavlennymi Fotograficheskimi Plenkami]. [1959] 16p. 11 refs. T-3095.
Order from LC or SLA mi$2.40, ph$3.30 60-14156

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 6, p. 430-439.

Indicatrices of scattering of light by densities of the specimen, which differed in this characteristic, were measured by means of a visual goniophotometer. The scattering of light by different densities, obtained by developing the specimen to various contrasts, increased in proportion to the increase in their optical density. The higher the coefficient of contrast, the higher the scattering of light by the specimen with a given optical density. The values of integral optical densities of the specimen were calculated from indicatrices of scattering and were compared with direct visual experiments. A relationship was determined between the optical density of the specimen and the solid angle of the receiver. Data were obtained on the practical admissible minimum dimensions of solid angles of the receiver during the measurements of the integral optical density. Physical bases for a mathematical characteristic description of the scattering of light by densities of the specimen by means of the so-called Callier's coefficient were analyzed. This value does not appear to be a strict measure for the light scattering, because it also includes the absorption of light by the density specimen. Two new methods are suggested for the mathematical evaluation of light scattering by specimens by: (1) The factor of light scattering q, representing the total scattered light within the total beam transmitted through the specimen $[q = 1\text{-antilog}\ (D_{\Sigma} - D_{\parallel})]$ and (2) the angle of scattering 2α representing the form of the indicatrix of scattering with a certain approximation.

Gorokhovskiy, Yu. N.
SCIENTIFIC DISCUSSION OF SENSITOMETRY OF BLACK-AND-WHITE AND COLOR PHOTOGRAPHIC MATERIALS. [1959] [5]p. T-3105.
Order from LC or SLA mi$1.80, ph$1.80 60-14150

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 317-319.

Topics are noted that were discussed at an expanded plenary session of the Commission on the Science of Photography and Motion Pictures of the Academy of Sciences of USSR, convened in Leningrad on April 21-23, 1959.

Moshkovskiy, Yu. Sh.
EFFECT OF SILVER HALIDE CONCENTRATION ON THE SCATTERING OF LIGHT IN AN EMULSION LAYER [Vliyaniye Kontsentratsii Galoidnogo Serebra na Rasseyaniye Sveta v Emul'sionnom Sloye]. [1959] 5p. 8 refs. T-3096.
Order from LC or SLA mi$1.80, ph$1.80 60-14155

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 6, p. 440-442.

A method is suggested for determining the light scattering in an emulsion based on the effect of a decrease in the optical density when the width of a slit is decreased. With the increase in the concentration of silver halide the light scattering decreases until $\rho = 1.0$, and then it starts to increase again.

Valenti, Giorgio.
PHOTOGRAPHIC APPARATUS PROVIDED WITH A PLURALITY OF LENSES, FOR GRAPHIC, PHOTOGRAPHIC, AEROPHOTOGRAPHIC REPRODUCTIONS AND FOR THE IMMEDIATE MULTIPLICATION OF A SINGLE MODEL AS WELL AS FOR MOTION PICTURE PROJECTION, tr. by C. P. 20 Jan 60, 16p. (6 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 60-15097

Trans. of Italian patent 548342, cl. XXIII, appl. 30 Jan 56, granted 24 Sep 56, printed July 57.

The photographic apparatus, particularly for photomechanical reproductions, is characterized in that it comprises at least two objective lenses with relative shutters, the camera angle of which is greater than the angle of image. It comprises devices for varying and regulating the distance between the center distances of the divers lenses. At least part of the lenses is mobile so as to regulate the optical axis of such lenses with respect to the optical axis of the apparatus. The means of actuation for at least part of the shutters pertaining to the lenses end in a single control device thus permitting the simultaneous control of such shutters. The means of actuation for at least part of the shutters, terminating in a single control device, are connected with the latter by means of coupling devices which permit the insertion or exclusion of any of the shutters from the kinematic chain terminating in the said control device. In combination with at least part of the lenses the apparatus comprises means for causing the deviation of the optical axis of such lenses in dependency on the mutual distances which it is desired to obtain between the various pictures provided by the negative. It also comprises, in combination with the principal lenses, at least one auxiliary lens adapted to permit the filming of the picture for the purpose of checking and testing. The auxiliary lens is combined with a translucent surface and/or suited for exposure by means of a reflecting surface.

Yanson, K. R.
PRE-SCREENED FILM. [1959] 6p.
Order from LC or SLA mi$1.80, ph$1.80 60-14041

Trans. of Poligraficheskoye Proizvodstvo (USSR) 1958, no. 1, p. 18-20.

Information is surveyed on (1) the pattern and functioning of prescreened photographic film, (2) the gradation characteristics of prescreened film, (3) the light-sensitivity range stipulations for the prescreened film, (4) the application of a prescreened film and its advantages, and (5) the method of preparing prescreened photographic film.

Zabello, V.
HYDROTYPE METHOD FOR FILM COPY PRINTING, tr. by J. M. H. 12 Jan 60, 6p. (1 fig. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15098

Trans. of Kinomekhanik (USSR) 1959, no. 4, p. 30-31.

A survey

Plastics

VALUABLE NEW EPOXY CONDENSATES. Feb 60, 12p. 5 refs.
Order from RIS $22.00 RIS rept. 6457

Trans. of German patent application F 10 412 (39c, 13) DAS 1 010 736, filed 19 Nov 52, pub. 19 June 57, by Farbenfabriken Bayer A. G., Leverkusen.

A process is described for preparing high-molecular weight, water-soluble, basic condensates containing reactive epoxy groups in the molecule. The process is characterized in that epichlorohydrin, or substitution products or homologs thereof which likewise contain a chlorine atom and an oxide group, or dichlorohydrin (the latter together with the commensurate amount of alkali) is reacted with basic di- or polyamines that contain at least one primary, aliphatically linked amino group, in water or organic solvents at a total concentration of less than 40%, at a pH of about 7 to 11 at the beginning and a pH of about 7 to 9.5 as the condensation progresses, at temperatures under 100°C until the resulting solutions are highly viscous, and the products obtained are then stabilized by addition of acid, possibly after being quaternized.

Kiselev, B. A.
GLASS PLASTICS (Stekloplastiki). Dec 59, 25p. 74 refs. RTS no. 1241.
Order from LC or SLA mi$2.70, ph$4.80 60-13438

Trans. of Uspekhi Khimii (USSR) 1958, v. 27, no. 9, p. 1101-1114.

A survey.

Thinius, K.
THE DISSOLVING CAPACITY OF THE SOFTENERS. [1960] 12p. 6 refs.
Order from SLA mi$2.40, ph$3.30 60-14145

Trans. of Plaste und Kautschuk (Germany) 1958, v. 5, no. 1, p. 3-5.

Softeners were determined which (1) peptise the dry nitrocellulose into completely clear and fiber-free solutions with 3 hours; (2) dissolved the nitrocellulose only more or less within 3 hours, but brought about a clear solution only with 24 hours; and (3) dissolved the dry nitrocellulose not at all or only incompletely even after 24 hours. (See also 60-14141)

Thinius, K.
THE DISSOLVING CAPACITY OF THE SOFTENERS (CONTINUATION). [1960] 13p. 7 refs.
Order from SLA mi$2.40, ph$3.30 60-14144

Trans. of Plaste und Kautschuk (Germany) 1958, v. 5, no. 2, p. 52-54.

Information is presented on the dissolving capacity for the cellulose derivatives other than nitrocellulose. (See also 60-14145)

Thinius, K.
THE DISSOLVING CAPACITY OF THE SOFTENERS (CONTINUATION AND CONCLUSION). [1960] [30]p. 20 refs.
Order from SLA mi$2.70, ph$4.80 60-14141

Trans. of Plaste und Kautschuk (Germany) 1958, v. 5, no. 3, p. 96-103.

The difference in the dissolving capacity of the o-phthalates and their terephthalates is pointed out, whereby the p-isomer yields a higher KLT because of its linear extent. (See also 60-14144, 60-14145)

Rubber and Elastomers

*KAUCHUK I REZINA (USSR) 1959 [VOL. 18] (Raw and Vulcanized Rubber). [1960]
Order from OTS $0.60, $3.50/6 mo.
Foreign $0.85, $5.00/6 mo.

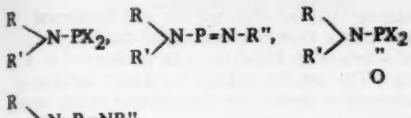
No. 8, p. 1-64, PB 141 057T-17
No. 9, p. 1-64, PB 141 057T-16

Consists of abstracts in English.

NEW POLYMERIZATION CATALYSTS FOR ORGANICALLY DISUBSTITUTED SILOXANES. Feb 60, 10p.
Order from RIS $20.00 RIS rept. 6262

Trans. of German patent application W 10 357 (39c, 30) filed 13 Jan 53, pub. 20 Jan 55, by Wacker-Chemie G. m. b. H., Munich.

A process for polymerization of siloxanes, notably diorganosiloxanes, into high-molecular weight liquid or solid elastic substances suitable for production of siloxane rubber is described, characterized in that the siloxanes are treated with phosphorus-nitrogen compounds which represent either phosphonitrile halides or phosphorous or phosphoric acid derivatives that are substituted at the nitrogen by organic radicals and may be substituted by halogen besides. Use is made of phosphorus-nitrogen compounds of formulas $(PNX_2)_n$,



where n represents a whole number of at least 3, X halogen, and R, R' and R" represent alkyl, aryl, or aralkyl radicals or hydrogen. The polymerization is effected at a temperature between room temperature and 150°C. The phosphorus-nitrogen compounds are used in amounts of 0.1 to 10% by weight relative to the starting product to be polymerized. Such organically disubstituted siloxanes are subjected to polymerization as contain, in addition to methyl groups, other alkyl, aryl or aralkyl groups.

PRESS WITH MOLD CORE MADE OF RADIALLY MOVABLE ELEMENTS FOR THE PRODUCTION OF COMPRESSED AIR TIRE TREADS, tr. by P. C. C. 8 Feb 60, 3p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15549

Trans. of German patent 223,909, cl. 63e, gr. 10, pat. 25 June 1908, pub. 6 July 10 (appl. in France 10 Aug 07) by A. Olier & Cie, France.

The invention relates to presses for the vulcanization of treads, in which the mold core conventionally consists of radially movable elements. The press is characterized in that the displacement of the smaller elements of the mold core is induced by eccentrics mounted on a common shaft, the return of the larger elements being caused by the engagement of lateral projections of the smaller circular mold elements with extensions of said larger elements. The eccentric shaft is rotated by means of a gear transmission driven by a rack whose end portion is shaped as a piston cooperating with a cylinder filled with pressure water. With this arrangement the entire drive always remains in the same horizontal plane.

Kargin, V. A., Plate, N. A., and Dobrymina, A. S.
SOME PROPERTIES OF BLOCK COPOLYMERS OF AN EPOXIDE RESIN AND BUTADIENNE NITRILE RUBBER (O Nekotorykh Svoystvakh Blok-Sopolimerov na Osnove Epoksidnoy Smoly i Butadiennitril'noyo Kauchuka). [1959].
Order from LSB $6.50 LSB-105

Trans. of *Kolloid[nyy] Zhurnal (USSR) [1958] v. 20, no. 3, p. 332-337.

Okhrimenko, I. S.
VULCANIZATION OF ELASTOMERS UNDER HIGH PRESSURES (Vulkanizatsiya Kauchukov pod Vysokim Davleniyem). Feb 60 [16]p. 33 refs. RTS 1275.
Order from LC or SLA mi$2.40, ph$3.30 60-15562

Trans. of Kauchuk i Rezina (USSR) 1958, no. 3, p. 5-11.

An investigation was made of the influence of pressures up to 10,000 kg/sq cm on the process of curing both raw and vulcanizable mixtures of elastomers, and on the properties of the resultant products. High pressures accelerated the formation of stable carbon-carbon cross linking bonds between molecules of the elastomer. When this takes place without any vulcanizing agent, special polymers possesing high quality properties are obtained. It was established on a curing basis, that the reactivity capabilities of each elastomer is determined by the degree of unsaturation and, above all, by the steric qualities and the content of external double bonds. In vulcanizing mixtures under high pressure the participation of sulphur in the formation of the vulcansate is considerably reduced: in sulphur-containing mixtures based on SKB the predominant reaction occurs between the molecules of elastomer alone. The function of intensifiers, fillers, and plasticizers, do not undergo essential changes. Incorporation of polymerization radical initiators can give ultra fast vulcanizing mixtures.

Solomon, O. and Ambrus, Carmen.
THE OBTAINING OF POLYISOPRENE SYNTHETIC RUBBER USING CATALYSTS FROM BUTYL LITHIUM AND TITANIUM TRICHLORIDE. [1959] [2]p. 13 refs.
Order from SLA mi$1.80, ph$1.80 60-10816

Trans. of Rev[ista de] Chim[ie] (Rumania) 1958, v. 9, no. 3, p. 150.

Thelamon-Meynard, C.
COLD-POLYMERISED NITRILE RUBBERS (Caoutchouces Nitrile Polymerises à Froid) tr. by R. J. Moseley. 26 June 58 [10]p. 7 refs. Trans. no. 649; M 73.
Order from LC or SLA mi$1.80, ph$1.80 59-18718

Trans. from Bull. Lab. Rech. Cont. Caout [sic] 1957, no. 52.

The mechanical properties of the new low-temperature (about 5°C) copolymers (the Krynacs) of the Polymer Corporation are compared with those of the old grades polymerized at 50°C, and with the cold rubbers (Hycar 1041, 1042, and 1043) from B. F. Goodrich Chemical Company.

Wood and Paper

Brecht, W. and Berthold, W.
THE TESTING OF PAPER FOR SUITABILITY AS CORRUGATING MEDIUM. Jan 60, 12p. (18 figs. omitted) 8 refs.
Order from SLA mi$2.40, ph$3.30 60-14146

Trans. of Wochenbl[att für] Papierfabrik[ation] (West Germany) 1959, v. 87, no. 11/12, p. 467-478.

Robert, A. and Martin-Borret, O.
CONTRIBUTION TO THE IDENTIFICATION OF HIGH POLYMERS IN PAPER BY INFRA-RED SPECTROGRAPHY, tr. by I. L. Frewer. Jan 60, 9p. (5 figs. omitted).
Order from SLA mi$1.80, ph$1.80 60-14137

Trans. of A[ssociation] T[echnique de] l'I[ndustrie] P[apetiere]. Bull[etin] (France) 1958, no. 6, p. 195-203.

The object of this account is to show that, with infra-red spectrography, the high polymers used in paper making can be (1) quickly classified and (2) identified. We have obtained infra-red spectra of high polymers most frequently used in paper making (in their industrial state) and in the form of extracts of paper coated in the laboratory. (Author)

Stemsrud, F.
THE FINE STRUCTURE OF THE BORDERED PIT MEMBRANE OF CONIFERS, pt. 2. Jan 60, 6p. (7 figs. omitted) 5 refs.
Order from SLA mi$1.80, ph$1.80 60-14162

Trans. of Holzforschung (Germany) 1959, v. 13, no. 1, p. 16-20.

To confirm previous electron microscope findings, in accordance with which the torus of the bordered pit of pinewood in the transition zone between sapwood and heartwood is often perforated, impregnation experiments of wood with radioactive solutions were carried out. In the experiments dry pinewood was subjected to pressure impregnation and green pinewood to impregnation by dipping. The depth of penetration and absorption of preservative in the individual zones of the wood were ascertained by means of an X-ray film (autoradiography) and a Geiger-Müller counter. From the autoradiograph it appeared that the wood in the region of the inner sapwood zone next the heart is penetrated to a greater extent by the impregnating agent, so that the assumption of a relation between the membrane perforation of the bordered pit and the greater absorption of impregnating agent in this zone of the wood appears to be justified. Further, it was found that spring and summer wood absorb radiation very differently, so that if this is not taken into account the evaluation of the autoradiograph may be misleading. By determining the activity of the radioactive impregnating agent after ashing the wood it could be established that the spring wood contains more impregnating agent per unit weight and the summer wood more impregnating agent per unit volume. (Author) (See also 59-10293)

Wultsch, F.
BEATING OF HARDWOOD PULPS FOR THE PRODUCTION OF VARIOUS TYPES OF PAPER. Feb 60, 10p. (12 figs. omitted) 6 refs.
Order from SLA mi$1.80, ph$1.80 60-14284

Trans. of das Papier (West Germany) 1959, v. 13, no. 17/18, p. 407-413.

Beating tests carried out with spruce and hardwood pulps showed that a separate beating of the fibre species and a following blend is to be preferred to a joint beating. The index numbers for sheet volume, opacity, tear and medium fibre length and the drainage of the stock on the wire are thus improved. Pilot plant tests in the stock preparation of a paper mill confirmed the results found in the laboratory. A comparison of paper specimens, one of which was prepared with joint treatment, the other with separate treatment, confirmed the superiority of the paper produced from hardwood pulps with separate beating with respect to the properties mentioned above. (Author)

MATHEMATICS

*PRIKLADNAYA MATEMATIKA I MEKHANIKA (USSR) 1959, V. 23, (Applied Mathematics and Mechanics). [1960].
Order from OTS $0.60, $3.50/year
Foreign $0.85, $5.00/year

No. 4, p. 625-800, PB 141 034T-10
No. 6, p. 993-1147, PB 141 034T-9

Consists of abstracts in English.

Gel'fond, A. O.
CALCULUS OF FINITE DIFFERENCES. [1959] 7p.
Order from MDF $2.50 MDF G-148

Partial trans. (table of contents and forward) of mono. pub. Mos[cow] 1952, 479p.

Glushkov, V. M.
ONE METHOD OF AUTOMATIC PROGRAMMING. 16 Feb 60, 7p. JPRS: 2243.
Order from OTS $0.50 60-11291

Trans. of *Problemy Kibernetiki (USSR) 1959, no. 2, p. 181-184.

Sagalovich, Yu. L.
ON GROUP INVARIANCE OF BOOLEAN FUNCTIONS. [1959] 6p. 4 refs.
Order from MDF $3.00 MDF S-146

Trans. of Usp[ekhi] Matem[aticheskikh] Nauk (USSR) 1959, v. 14, no. 6(90), p. 191-195.

Quantitative relations related to an arbitrary Boolean function are obtained while keeping in mind that the function is subject to substitution of variable transformations.

Computing Devices

Kondalev, A. I.
NEW DEVELOPMENTS IN COMPUTER MATHEMATICS AND TECHNIQUES (PROCEEDINGS OF A CONFERENCE AT THE KIEV COMPUTER CENTER AN UKRAINE SSR) tr. by Morris D. Friedman.
Nov 59 [7]p. AFCRC-TN-60-130; K-198.
Order from LC or SLA mi$1.80, ph$1.80 60-15451

Trans. of Usp[ekhi] Mate[maticheskikh] Nauk (USSR) 1959, v. 14, no. 4(88) p. 237-241.

Topics are noted of papers that were read at the conference, which was held on December 1 to 3, 1958. Authors names, and in most cases the titles of the papers, are given.

Lyubchenko, G. G.
METHOD OF SELECTING LOGICAL OPERATIONS AND MECHANISMS TO EXECUTE THEM IN DIGITAL COMPUTERS. [1959] 17p. 6 refs.
Order from MDF $8.50 MDF L-130

Trans. of Ukr[ainskiy] Mat[ematicheskiy] Zh[urnal] (USSR) 1958, v. 10, no. 4, p. 375-388.

MECHANICS

Khanin, I. M., Yaremchuk, V. A., and Kupriyenko, I. G.
THE USE OF RADIOACTIVE ISOTOPES IN THE INVESTIGATION OF THE MOVEMENT OF GASES IN COKE OVENS [Primeneniye Radioaktivnykh Izotopov pri Issledovanii Dvizheniya Gazov v Koksovykh Pechakh]. June 58, 14p. 13 refs. C. T. S. no. 469.
Order from LC or SLA mi$2.40, ph$3.30 60-13224

Trans. of Koks i Khimiya (USSR) 1957, no. 10, p. 20-25.

Suggestions are presented concerning the methods of using radioactive isotopes in the investigation of the distribution of gases in regenerators, the methods of examining the recirculation of combustion gases, and of the degree of mixing of gas and air in the coke oven heating channels.

Schiller, A.
STRESSES AT THE JOINT FACE OF AUSTENITE-FERRITE WELDS. [1960].
Order from BISI £2 15s BISITS 1513

Trans. of V[ereinigung der] G[rosskessel]b[esitzer]. Mitt[eilungen] (West Germany) 1958, June, p. 176-180.

At temperature changes with uniform temperature distribution, internal stresses are set up in positively connected joints between two materials with dissimilar coefficients of expansion, as the materials are no longer able to deform freely. Formulae are presented which permit calculation of the internal stressing (according to the elastic theory) occurring at the joint face of austenitic-ferritic welds. It is shown that the stresses decrease with increase in temperature and are at a maximum at room temperature. Again it is pointed out that the stresses generally do not exceed the plastic limit of deformation of one of the two materials at the relevant temperature and that creep reduces these stresses further during service at elevated temperatures, especially at long working periods. This accords also with observations in experiments (H. Linden and H. Hennecke, ibid. pp. 65): Pressure welded austenitic-ferritic connections) carried out under the most stringent test conditions, where no defects could be detected in the joint face or in the heat-affected zones. (Author)

Skuridin, G. A.
THE DUHAMEL PRINCIPLE AND ASYMPTOTIC SOLUTIONS OF THE DYNAMICAL EQUATIONS OF THE THEORY OF ELASTICITY, I (Printsip Dyuamelya i Asimptoticheskiye Resheniya Dinamicheskikh Uravneniy Teorii Uprogosti, I) tr. by A. Pingell. 1959 [12]p. 13 refs. N R L Trans. no. 766.
Order from OTS $0.50 60-21036

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1959, no. 1, p. 3-10.

It is shown that in the presence of a system of finite discontinuities in a pulse solution, the solutions of the dynamical equations of the theory of elasticity can be presented in the form of a series (in the case of a harmonic source of oscillations) in inverse powers of $i\omega$. The coefficients of these series are jumps of the pulse solution (and jumps of its derivatives with respect to time). When $\omega \longrightarrow \infty$, the series obtained for the components of the displacement vector are asymptotic. The region of convergence of the series is not considered.

Yakovlevskiy, O. V.
THE THICKNESS OF THE TURBULENT MIXING ZONE AT THE BOUNDARY OF TWO GAS STREAMS WITH DIFFERENT VELOCITY AND DENSITY [O Tolshchine Zony Turbulentnogo Peremeshivaniya na Granitse dvukh Potokov Gaza Raznoy Skorosti i Plotnosti]. [1959] 3p.
Order from ATS $6.00 ATS-24M38R

Trans. of Akad[emiya] Nauk SSSR. Otdel[eniye] Tekh[nicheskikh] Nauk. Izvest[iya] 1958, no. 10, p. 153-155.

Isaakyan, S. M.
EDDIES IN HYDRAULIC STRUCTURES AND THEIR CAPACITY (Voronki u Gidrotekhnicheskikh Sooruzheniy i Ikh Propusknaya Sposobnost') tr. by S. E. [1959] 13p. (4 figs. omitted) 10 refs. H-3742.
Order from OTS $0.50 59-21144

Trans. of Akademiya Nauk [Armyanskoy SSR, Yerevan]. Izvestiya. [Fiziko-Matematicheskiye, Yestestvennyye i Tekhnicheskiye Nauki] 1955, v. 8, no. 3, p. 101-111.

The capacity of eddies formed both in natural water flow from under a gate and in artificial increase of eddies by passing water around eddy-forming gates was experimentally determined. Dimensionless relationships were found which may be used for approximate computations, and also for modelling the capacity of eddies on the basis of Froude Number and the ratio R/a. The root mean square deviation of proposed relationships is within 3 to 6%.

Kaario, Toivo Juhani.
METHOD OF ELIMINATION OF THE FRICTION BETWEEN A VEHICLE TRAVELING ALONG A SURFACE AND THE SURFACE, tr. by F. H. B. 9 Dec 59, 1p.
Order from LC or SLA mi$1.80, ph$1.80 60-13272

Trans. of Claim of Finnish patent 18,630, cl. 62c, 2 Jan 35.

The method is characterized in that the vehicle, equipped with a winglike airfoil, travels along the surface in such a way that the airfoil forms with the surface an angle which is open in direction of travel, whereby there is formed, depending on the form of the airfoil, a vessel open in front and otherwise more or less closed, in which there prevails an excess air pressure caused by the motion of the vehicle. This pressure together with the low pressure possibly prevailing at the upper side of the vehicle lifts the vehicle from the ground or water surface while the pressure variations taking place under the airfoil due to the movements of the airfoil hold the vehicle in balance at a constant height in direct proximity of the surface, but nevertheless free.

Kaario, Toivo Juhani.
METHOD OF LIFTING A VEHICLE FREE FROM ITS PATHWAY, tr. by F. H. B. 9 Dec 59, 1p.
Order from LC or SLA mi$1.80, ph$1.80 60-13273

Trans. of Claim of Finnish patent 26,122, cl. 62b-39, appl. laid open to public inspection 30 Sep 49, pat. granted 10 Dec 52, pub. 14 Nov 53, protection in Finland started 7 Jan 49.

A device for a vehicle which is to travel directly above a water surface is described, by which the vehicle is vertically lifted from the pathway, so that its start and motion are facilitated. The vehicle is equipped with one or more aerodynamic airfoils (sic: hydrofoils?) which, when the vehicle stands still, almost touch the pathway with their edges. The device comprises one or more compressors driven by one or more engines for blowing sufficient air under pressure into the space between the aerodynamic airfoil or airfoils (sic) and the pathway, so as to lift the vehicle to a slight, stable distance from the pathway.

METALLURGY

*METALLOVEDENIYE I TERMICHESKAYA OBRABOTKA METALLOV (USSR) 1959 (Metallography and Heat Treatment of Metals). [1960].
Order from OTS $0.60, $3.50/6 mo.
Foreign $0.85, $5.00/6 mo.

No. 10, p. 2-64, PB 141 131T-17
No. 11, p. 2-64, PB 141 131T-15
No. 12, p. 2-60, PB 141 131T-16

Consists of abstracts in English.

*METALLURG (USSR) 1959 [VOL. 4] (Metallurgist). [1960]
Order from OTS $0.60, $3.50/6 mo.
Foreign $0.85, $5,00/6 mo.

No. 11, p. 1-40, PB 141 132T-14
No. 12, p. 1-36, PB 141 132T-15

Consists of abstracts in English.

THE PHYSICS OF METALS AND METALLOGRAPHY, 1958, VOL. 6, NO. 5. Dec 59, 195p.
Order from PP $30.00/year

Trans. of Fizika Metallov i Metallovedeniye (USSR) 1958, v. 6, no. 5, p. 769-960.

SOVIET NONFERROUS METALLURGY: SELECTED TRANSLATIONS NO. 2. 15 Dec 59, 43p. JPRS: 1977-N.
Order from OTS $1.25 60-11114

Contents:
Overall Automation of a Bauxite Wet Grinding Department, by V. I. Gusarov and A. M. Samoylin. Trans. of Tsvetnyye Metally (USSR) 1958 [v. 31] no. 6, p. 26-30.
Construction of Mining Enterprises in Nonferrous Metallurgy during 1959-65, by A. F. Tyuryakov. Trans. of Shakhtnoye Stroitel'stvo (USSR) 1959, no. 3, p. 6-9.
Nonferrous Metallurgy and Technological Progress, by B. Novozhilov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 4, p. 28-31.

Broad Plan for Geological Prospecting Operations, by N. Skvertsov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 5, p. 26-27.

We Will Fulfill the First Year of the Seven-Year Plan Ahead of Schedule, by V. Fel'dman and M. Maslov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 5, p. 35-40.

Early Processing of Mercury in Southern Fergana, by A. I. Poshka and V. P. Fedorchuk. Trans. of Priroda (USSR) 1959 [v. 48] no. 5, p. 108-109.

Dust from Lead Production as One of the Sources of Obtaining Dispersed Elements, by M. A. Vinogradova. Trans. of Tsvetnyye Metally (USSR) 1959 [v. 32] no. 6, p. 39-41.

USSR ABSTRACTS OF METALLURGY; PART A, 1959, NO. 2. Feb 60, 97p.
Order from PP $25.00/year

Trans. of abstracts of a highly scientific nature from Referativnyy Zhurnal. Metallurgiya (USSR) 1959, no. 2.

U.S.S.R. ABSTRACTS OF METALLURGY; PART A, THE SCIENCE OF METALS, 1959, NO. 4. Feb 60, 88p.
Order from PP $25.00/year

Trans. of abstracts of a highly scientific nature from Referativnyy Zhurnal. Metallurgiya (USSR) 1959, no. 4.

Aguet, E.
RESULTS OBTAINED FROM RUNNING TWO GAS TURBINE PLANTS IN BELGIAN METALLURGICAL WORKS. [1960].
Order from BISI 4 BISITS 1494

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] 15 Oct, p. 1479-1483.

Two 7 1/2 mw gas turbine units at the Societe Metallurgique Hainaut-Sambre, Couillet: points of interest in their construction, troubles, effect of dirt, and need to purify gas to 1-2mg/Nm^3. 7 1/2 mw gas turbine unit at the Societe Anonyme Cockerill, Seraing; using without intermediate cooling of the air, controlling the amount of blast, starting the plant, and acceptance tests with blast-furnace waste-gas, and on burning mixtures of waste gas and gas oil. (Author)

Danilov, F. A. and others.
BASIC PROBLEMS IN THE THEORY OF PIERCING. [1960].
Order from BISI 29 BISITS 1354

Trans. of mono. Proizvodstvo Stal'nykh Trub Goryachey Trokatkoy, Moscow, 1954, Chap. 6, p. 58-93.

The calculations and expressions for the forces exerted and power required are given. Piercing rate and billet engagement are also dealt with. (J. Iron Steel Inst. abstract)

Danishevskiy, S. K.
AN APPARATUS FOR CALIBRATION OF TUNGSTEN-MOLYBDENUM THERMOCOUPLES (Ustanovka dlya Graduirovki Vol'fram-Molibdenovykh Termopar). 1960 16p. 6 refs. (foreign text included)
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3829

Trans. of Zavodskaya Laboratoriya (USSR) 1956, v. 22, no. 10, p. 1235-1240.

Dickens, P., Esche, W. v. d., and Willems, J.
APPRAISAL OF BEHAVIOR OF ORES AND SINTERS IN BLAST FURNACE. Feb 60, 8200 words.
Order from HB $16.20 HB-4662

Trans. of Stahl und Eisen (West Germany) 1959, v. 79, no. 13, p. 905-917.

Need of blast-furnace operator for more information on the prospective behavior of ores and sinters in smelting to select the most appropriate burden for efficient reduction. Authors' study of mechanical stability of ores and sinters and their softening under load at high temperatures in a reducing atmosphere. Use of the refractoriness-under-load test for cube and cylinder-shaped specimens. Determination of softening, fusion, and flow points in hot-stage microscope. Comparison of results of the two methods; which method is preferable for sinters? Reduction experiments in gas stream (a) with city gas according to L. Mathesius; and (b) with a 65% N +35% Co mixture. New experimental arrangement with continuous recording of gas composition. Reduction curves for Venezuela and Swedish ores; effect of variation of gasflow rate. Microscopic study of ore reduction in hot-stage microscope: structural make-up of the several ores in their initial state and after reduction. Proposal for an Ore Data Card Index File as a valuable aid to the B. F. operator: explanation of the various items listed on the card. General Discussion- Effect of gas flowrate on % reduction; degree of reduction with sinter machine vs. rotary kilns; macroporosity as an important factor: in studies of the reduction of ores and sinters, the same particle size should be used as will go into the blast furnace. (HB abstract)

Dokkina, D. M. and Petrova, E. I.
DETERMINATION OF TANTALUM IN TITANIUM ALLOYS BY ULTRAVIOLET SPECTROPHOTOMETRY. [1960].
Order from BISI 2 BISITS 1642

Trans. of Zavods[kaya] Lab[oratoriya] (USSR) 1957 [v. 23] no. 4, p. 421-422.

Dudko, D. A., Sterenbogen, Yu. A., and Potap'evskiy, A. G.
THE MULTIPLE-RUN WELDING OF THICK METAL IN A PROTECTIVE MEDIUM OF CARBON-DIOXIDE GAS (Mnogoprokhodnaya Svarka Tolstogo Metalla v Zashchitnoy Srede Uglekislogo Gaza). Jan 60, 9p. RTS no. 1210.
Order from LC or SLA mi$1.80, ph$1.80 60-13469

Trans. of Avtomaticheskaya Svarka (USSR) 1957 [v. 10] no. 3 [54] p. 58-63.

Heynert, G. and Willems, J.
THE REACTIONS OCCURRING IN THE BLAST FURNACE AS SEEN FROM THE KINETIC POINT OF VIEW. [1960].
Order from BISI 5 10s BISITS 1518

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] Oct, p. 1545-1554.

General principles relating to the flow of materials and to the chemical reaction rate. Reactions occurring in the blast furnace. Temperature pattern and gas composition. Reactivity of ores and coke velocity. Constant of the Boudouard reaction. Concentration drop and coversion rate. Factors affecting the intensity of gasification. Final temperature of the kinetic reaction. Length of the deoxidation zone. Conclusions on blast furnace operations. (Author's summary)

Hirsch, W. and Fritze, H. W.
ON HOT CRACKING OF AUSTENITIC CHROMIUM-NICKEL WELDS. [1960].
Order from BISI 4 BISITS 1633

Trans. of Schweissen u[nd] Schneiden (West Germany) 1956 [v. 8] no. 3, p. 81-85.

The tendency to hot cracking of welds is mainly caused by molten phases in the grain boundaries shortly before the freezing of the weld metal. The cooling stresses which appear act in these phases. There are connections between the soludus temperature of the weld metal and the tendency to hot cracking, particularly unfavourable are the films of a eutectic nature at the grain boundaries. The influence of the structure formation of grain size and of various alloyed elements on the tendency to hot cracking of austenitic Cr-Ni-steel has been discussed and especially the effects of the niobium content. An attempt to show the favourable influence of ferrite has been made. Sometimes hot cracking can start from the parent metal. (Author)

Khvichiya, A. T.
ELECTRICAL RESISTANCE OF CHROMITE-COAL MIXTURES DURING COKING. Feb 60, 1400 words.
Order from HB $3.00 HB-4689

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metallurgiya (USSR) 1959, no. 5, p. 41-44.

Study of effect of chromium and of carbonaceous binders on the electrical resistance of coals being coked; usefulness of data for proper furnace operation. Experimental setup and procedure. Precautions taken in present work. Specific electric resistance of chrome ore + coal mixtures as function of temperature and composition. Analysis of diagrams. (HB abstract)

Koval', I. F.
RELATIONSHIP BETWEEN BLAST TEMPERATURE AND TEMPERATURE DISTRIBUTION OVER THE HEIGHT OF THE BLAST FURNACE. Feb 60, 3100 words.
Order from HB $7.80 HB-4696

Trans. of Izv[estiya] V[yashikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metallurgia (USSR) 1959, no. 5, p. 19-27.

Investigation of the problems connected with blast-furnace wind temperature. Particulars on a 1/20 scale model blast furnace dimensioned so as to make the experimental results obtained with it directly applicable to industrial blast furnaces. Construction and equipment of model, set up next to, and connected with, an industrial blast furnace. Temperature distribution over height of blast furnace as function of temperature of blast. Nature of irregularities in gas temperature distribution at the four furnace levels studied. Effect of light vs. heavy ore charges on temperature distribution; effect of increased wind blown at constant blast temperature. (HB abstract)

Lueg, W. and Pawelski, O.
THE HYDRAULIC 25-TON BAR DRAWING BENCH OF THE MAX-PLANCK-INSTITUTE FOR IRON RESEARCH AND ITS POSSIBILITIES OF USE. [1960].
Order from BISI 4 BISITS 1476

Trans. of Stahl u[nd] Eisen (West Germany) 1958 [v. 78] 11 Dec, p. 1812-1815.

After allusion to the requirements to be met by an experimental machine, follows a detailed description of the Institute's new hydraulic 25-ton bar drawing bench. The mode of operation of the bar pushing-in device is explained, and a supplementary device for the pushing-in of thin bars is mentioned. The elucidation of the hydraulics diagram illustrates the machine's possible mode of operation, the drawing with the back pull and the stretching. This is followed by a description of equipment for measuring the loads, the lengths of path, and the speeds of drawing. The many uses of the bar drawing bench are discussed in the light of the experiments carried out up to present, and the following are described: drawing and pushing-in experiments with round and rectangular bars; temperature measuring of wires with varying speeds of drawing; and stretching of reinforced concrete steels. (Author)

Metz, P. and others.
PRODUCTION OF STEEL FROM HIGH PHOSPHORUS PIG IRON BY TOP BLOWING OF OXYGEN WITH LINE POWDER. [1960].
Order from BISI £5 10s BISITS 1576

Trans. of Stahl u[nd] Eisen (West Germany) 1960 [v. 80] 7 Jan, p. 20-27.

History of development of the process described. The course of refining in the LD - AC process. Investigation of some metallurgical aspects. Relation between the carbon and the oxygen content of the metal. Relation between the phosphorus content of the metal and the iron content of the slag. Iron content of the slag and the yield of metal. Oxidation of the metal. Other factors in dephosphorisation. Desulphurisation. Slagging of manganese. Nitrogen content. Works results. (Author)

Murski, Cezary.
PROBLEMS OF ECONOMIC AND TECHNICAL PROGRESS IN THE METALLURGICAL INDUSTRY. 29 Sep 58, 15p. JPRS(DC)-L-467.
Order from OTS $0.50 PB 141 178T

Trans. of Wiadomosci Hutnicze (Poland) 1957, v. 13, no. 7-8, p. 235-242.

Neyfel'd, I. Ye. and Fal'kevich, A. S.
IMPROVED WELD INSPECTION METHODS: MAGNETOGRAPHIC METHOD. Feb 60, 1700 words, 1 ref.
Order from HB $4.85 HB-4734

Trans. of Svarochnoye Proizv[odstvo] (USSR) 1959, no. 2, p. 19-21.

Report on improvements made in recent months to apparatus for the magnetographic inspection of welds, developed at authors' Institute and first described in 1955 [see Brutcher Translation #3729]. Lessons learned in testing over 20,000 butt welds in 12-30 inch pipelines with the magnetograph; maximum thickness of pipe walls that can be scanned. Dependability, productivity, and cost of method compared with radiography (X- and gamma-rays). Precautions to be taken when using the magnetographic method to avoid spurious flaw indications. Basic improvements to tape-moving mechanism; solenoid and discharger and simplified disk magnet of magnetograph. Particulars on motorized field-testing laboratories, now in series production. Merits of a combination of 100% magnetographic inspection of pipeline butt welds, supplemented by radiographic inspection of all rejects. (HB abstract)

Pavlov, I. M.
RESEARCH ON THE ROLLING PROCESS. [1960].
Order from BISI - 8 BISITS 1542

Trans. of mono. Metallurgiya S. S. S. R. 1917-1957, ed. by I. P. Bardin, Moscow, 1959, v. 2, p. 56-81.

A chapter of the book giving an historical survey and review of theories of rolling pressure and deformation. (J. Iron Steel Inst. abstract)

Pogodin-Alekseyev, G. I. and Zaboleyev-Zotov, V. V.
NEW PROCESS FOR PRODUCTION OF ALLOYS [Novyy Sposob Prigotovleniya Metallicheskikh Splavov] Feb 60, 1000 words.
Order from HB $3.50 HB-4779

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 7, p. 25-26.

Report on a new method for producing alloys by which the main component is added in the solid state either in dispersed form or in that of a rod, to a molten mixture of the remaining part of the alloy, uniform distribution of the principal component being ensured by sonic or ultrasonic vibrations. Experimental arrangement and procedure. Preparation of an alloy of lead with tungsten carbide; structure. Importance of a sufficient input of (ultra)sonic energy. Applications and general advantages of method over casting and sintering; specific merits when compared with powder metallurgy. (HB abstract)

Pridantsev, M. V.
NEW STEELS AND ALLOYS, METAL WORKING AND HEAT TREATMENT (Raboty v Oblasti Izyskaniya Novykh Staley i Splavov, Metallovedeniya i Termicheskoy Obrabotki). [1959].
Order from LSB $6.00 LSB-103

Trans. of Stal' (USSR) 1957 [v. 17] no. 11, p. 1006-1010.

Rudenko, L. N. and Rostovtsev, S. T.
REDUCTION OF IRON OXIDES BY CARBON MONOXIDE, HYDROGEN, AND MIXTURES THEREOF. Feb 60, 3900 words.
Order from HB $8.90 HB-4693

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metallurgiya (USSR) 1959, no. 4, p. 3-12.

Inconsistencies in available literature data on the reduction rates of iron oxides by hydrogen and carbon monoxide. Authors' experimental arrangement and procedure, intended to give fully dependable results. Quantitative and qualitative changes in relation between reduction rates of iron oxides by hydrogen and carbon monoxide as function of conditions and stage of reduction process. Advantages of carbon monoxide during first stage of process at low and medium temperatures; advantages of hydrogen during second and third stages; also in presence of high resistance to internal diffusion. Peculiar kinetic tendencies resulting from addition of hydrogen to carbon monoxide and their underlying causes. (HB abstract)

Samsonov, G. and Paderno, V.
INTERNATIONAL ACADEMIC RELATIONS OF THE INSTITUTE OF POWDER METALLURGY AND SPECIAL ALLOYS OF THE UKRAINIAN ACADEMY OF SCIENCES. 19 Feb 60, 4p. JPRS: 1174-D.
Order from OTS $0.50 60-31055

Trans. of Akademiya Nauk URSR, Kiev. Visnyk, 1959, v. 30, no. 7, p. 64-66.

Sandler, N. I.
ON THE ORIGIN OF COLOURED SPOT ON TIN-PLATE. [1960].
Order from BISI £1 10s BISITS 1570

Trans. of Stal' (USSR) 1958 [v. 18] Metallography and Heat Treatment Suppl, p. 247-250.

The bright surfaces of plates prepared for tinning sometimes show matt spots which remain uncovered by the tin. Investigations, with special instruments are described. The findings show that the spots appear after annealing the rolls with the steel sheet and suggest a thin oxide layer, difficult to remove by etching, but easily removable with polishing. Below this layer the metal structure is normal. (J. Iron Steel Inst. abstract)

Smolyarenko, D. A. and Kaplan, T. S.
STANDARDIZATION AND CLASSIFICATION OF PRECISION ALLOYS. 21 Jan 60, 15p. 4 refs.
JPRS: 1128-D.
Order from OTS $0.50 60-31028

Trans. of Standartizatsiya (USSR) 1959, no. 3, p. 13-18.

Sorokin, P. Ya.
THE BALANCE SHEET OF AN EXPERIMENTAL MELT IN AN OXYGEN BLOWN CONVERTER. [1960].
Order from BISI £4 5s BISITS 1649

Trans. of Stal' (USSR) 1958 [v. 18, no. 11] p. 987-992.

An analysis of the materials and the heat balance sheets of an experimental melt, carried out in a 50-kg. laboratory converter, blown with oxygen, enabled us to determine that the high metal loss in burning is due to the local overheating of metal and, therefore, evaporation of certain elements. The influence of this factor can be minimized by applying finely dispersed bottom blowing and by addition of iron ore. (Author)

Stockl, E.
ELECTROCHEMICAL POLISHING OF THE INTERNAL SURFACES OF TUBES. [1960].
Order from BISI £2 BISITS 1620

Trans. from Blech (West Germany) 1959, Oct.

The difficulties of finishing the insides of tubes are noted and measured roughnesses before and after electropolishing are shown. The device used is illustrated and advantages are set out. (J. Iron Steel Inst. abstract)

Treyster, Yu. Ya.
BLAST FURNACE STOCK LEVEL INDICATED BY ULTRASONIC MEANS. Feb 60, 1400 words.
Order from HB $3.40 HB-4676

Trans. of *Metallurg (USSR) 1959 [v. 4] no. 5, p. 11-13.

Possibility of truly accurate and dependable measurement of stock level in blast furnace by use of ultrasonic indicator (magnetostrictive generator). General view of indicator for practical use; circuit diagram. Example of oscillograms and their interpretation. Conclusions drawn from two months' practical service; description and block diagram of a new, more powerful indicator incorporating the lessons learned during the trials. (HB abstract)

Turchenev, N. I.
THE MAINTENANCE OF CONSTANT QUALITY OF METALLURGICAL COKE WITH REGARD TO MECHANICAL STRENGTH [Obespecheniye Postoyannogo Kachestva Metallurgicheskogo Koksa po Mekhanicheskoy Prochnost]. Apr 58, 8p. 2 refs.
C. T. S. no. 440.
Order from LC or SLA mi$1.80, ph$1.80 60-13053

Trans. of Koks i Khimiya (USSR) 1957, no. 4, p. 18-23.

The laboratory and industrial petrographic analysis of coal, and the effect of tie plastometric index of the charge over a wide range are discussed. The work suggests the possibilities of controlling the quality of coke and its mechanical properties.

Weber, K.-H.
RING ROLLING AND THE CONSTRUCTION OF RING MILLS (WITH DISCUSSION). [1960].
Order from BISI £7 15s BISITS 1555

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] 24 Dec, p. 1912-1923.

The use of bars or specially cast ingots for rings is discussed, and a rough experiment to indicate the metal flow during ring rolling is described. After some notes on rolls and drive motors various types of ring mills for roughing and finishing, including some automatic ones, are described. In the discussion E. F. Dick describes an experiment from which he drew different conclusions about metal flow from those of the author. (Translator's abstract)

Ferrous Metals

*STAL' (USSR) 1959 [V. 19] NO. 12, P. 1057-1142. (Steel). [1960] 1v. SOV-133-59-12-(1-26)/26.
Order from OTS $0.70, $4.00/6 mo. PB 141 136T-19
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

Akimenko, A. D. and Skvortsov, A. A.
STUDY OF HEAT TRANSFER IN THE MOLD OF CONTINUOUS-CASTING MACHINES FOR STEEL. Feb 60, 2800 words.
Order from HB $6.85 HB-4735

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metall[urgiya] (USSR) 1958, no. 12, p. 45-50.

importance of precise data on heat transfer from billet to mold (cooling water) for correct mold design. Determination of heat flow from equations covering mold wall/cooling water; inside copper mold wall; and in air gap between inner mold wall and billet. Effect of percentage of hydrogen (from mold lubricant) present in air gap, upon heat transfer. Are high cooling water flow rates justified? How does the reciprocating motion of the mold affect the heat transfer? Usefulness of results of study for the design of new molds, especially the calculation of cooling water requirements, mold dimensions, etc. (HB abstract)

Antropov, O. F., Gurevich, Yu. G., and Mokhir, E. D.
EFFECT OF VACUUM TREATMENT ON PROPERTIES OF STEEL. Feb 60, 1400 words.
Order from HB $3.40 HB-4704

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metallurgiya (USSR) 1958, no. 12, p. 17-20.

Report on experimental 65-lb steel heats: (A) remelted in vacuum, poured in air; (B) remelted and poured in vacuum; (C) remelted and poured in air; but held in vacuum for 15 minutes prior to pouring. Steels studied: (1) 0.30% C, 1 Mn, 1 Si, 1.1 Cr, 1.6 Ni; (2) 0.30% C, 2.2 Si, 13 Cr, 6.5 Ni; (3) 1% C, 1.5% Cr bearing steel. Effect of the three melting and pouring practices (vacuum: 5-10 mm Hg) on hydrogen, nitrogen, and oxygen contents; number and length of hairline cracks and mechanical properties; nonmetallic inclusion content. (HB abstract)

Belyakov, A. I.
MANUFACTURE OF COLD ROLLED STEEL FOR USE IN TRANSFORMERS (Proizvodstvo Kholodnokatannoy Transformatornoy Stali). May 58, 6p. C. T. S. no. 453.
Order from LC or SLA mi$1.80, ph$1.80 60-13048

Trans. of *Metallurg (USSR) 1957 [v. 2] no. 5, p. 22-24.

Doroshek, S. I., Lapkin, N. I., and Shubin, G. N.
THE CHANGE IN DUCTILITY OF TRANSFORMER STEEL DURING THE COOLING PROCESS (Izmeneniye Plastichnosti Transformatornoy Stali v Protsesse Okhlazhdeniya). July 58, 6p. 2 refs. C. T. S. no. 464.
Order from LC or SLA mi$1.80, ph$1.80 60-13314

Trans. of *Fizika Metallov i Metallovedeniye (USSR) 1957 [v. 4?] no. 1, p. 171-176.

The kinetics of the change in ductility of hot-pressed transformer steel during the cooling process after low-temperature annealing without a protective medium were studied. The influence of the rate and temperature range of the cooling on the ductility of transformer steel was established by the method of slow cooling after annealing. The change in strength of high-alloy transformer steel during the cooling process after annealing is described by a curve having a maximum. This regularity is clearly expressed by the step-wise cooling method. Accelerated cooling after annealing increases the strength of transformer steel. Sufficiently high ductility of transformer steel, without significant reduction of the magnetic properties, can be achieved by an optimum cooling regime. The presence of coarse cementite even on the ferrite grain boundaries, although it increases the brittleness of the steel, is not the sole cause of this. Apparently the real cause of the reduction in strength of transformer steel may be the processes governing the known phenomenon of high-temperature (tempering) brittleness.

Edneral, F. P.
USE OF OXYGEN IN PRODUCTION OF ELECTRIC STEEL. Feb 60, 2700 words.
Order from HB $4.80 HB-4460

Trans. of Russian mono. Primeneniye Kisloroda v Metallurgii (Use of Oxygen in Metallurgy) Moscow, 1957, p. 285-289.

Special features of production of low-carbon stainless steel, especially 18-8 Ti steel, in medium-capacity arc furnaces, with injection of oxygen. Melting practices at several major USSR works: data on charging materials, yields, power consumption, oxygen and lance consumptions, refractories wear, etc. Production of alloy constructional and tool steels, and of carbon steels. Possibilities opened up by use of oxygen in electric furnace. (HB abstract)

Funke, P. Jr. and Lueg, W.
INFLUENCE OF AGEING ON THE PRECIPITATION PHENOMENA OCCURRING IN TEMPER-ROLLED SHEETS MADE OF DEEP-DRAWING STEEL. [1960].
Order from BISI BISITS 1561

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] [1] Oct, p. 1398-1411.

Strain and quench ageing and their interpretation by the dislocation theory. Relationship between yield point behavior, tendency to form stretcher strains and precipitation phenomena. Our tests: effect of different ageing conditions on the electrical resistance of uniformly and irregularly deformed samples of sheet. Number of passes and roll diameter as variables of the effect. Metallographic assessment of precipitates in steel of low carbon content. Test results: change in the electrical resistance depending upon the time of ageing. Conditions recommended for temper-rolling after particular consideration of the behavior on ageing. (Author)

Gulyayev, B. B. and Borovskiy, Yu. F.
THE FORMATION OF BURN-ON ON STEEL CASTINGS [Formirovaniye Prigara na Stal'nykh Otlivkakh]. Dec 59, 14p.. RTS no. 1239.
Order from LC or SLA mi$2.40, ph$3.30 60-13465

Trans. of Liteynoye Proizvodstvo (USSR) 1957, no. 6, p. 5-7.

In general, the processes of interaction between the metal and the moulding material on the surfaces of castings proceeds in the following manner. On casting, molten metal infiltrates into the pores of the moulding material and causes first the development of the mechanical phase in the formation of burn-on, which ends with the formation of a hard crust on the surface of the casting. As a result of the reaction between the metal and the oxygen of the atmosphere, oxides are formed, which by melting, penetrate into the moulding material, entering into chemical reaction with it and causing the development of the second chemical phase in the formation of burn-on. The intensity of growth of the contact zone during the period of the chemical phase of the formation of burn-on proceeds in accordance with a parabolic law and requires a very long time. The contact zone is divided into the following areas: an area in which the formation of cristobalite takes place and in which new minerals are formed, an area in which tridymite is formed, and an area in which the quartz grains are subjected to insignificant changes. The development of the chemical phase in the formation of burn-on ceases almost completely when the temperature of the surface of the casting cools down to 800°C. (Author)

Hrivnak, I.
THE EFFECT OF COLD DEFORMATION ON THE STRUCTURE OF AUSTENITIC GRAINS (AN ELECTRON MICROSCOPE STUDY). [1960].
Order from BISI £5 10s BISITS 1509

Trans. of Hutnicke Listy (Czechoslovakia) 1959 [v. 14] no. 6, p. 507-511.

Preface. Introduction. Methods of preparation of the specimens. The internal structure and growth patterns in the cast state. The effect of cold deformation on the internal structure. Conclusions. (Contents list).

Imai, M. and others.
ELIMINATION OF HYDROGEN AND NITROGEN FROM STEEL BATHS BY FLUSHING WITH ARGON. Feb 60, 900 words.
Order from HB $2.90 HB-4789

Trans. of Tetsu to Hagane (Japan) 1957, v. 43, no. 3, p. 45-46.

Trial heats of 3% Ni, 0.8 Cr, 0.3 Mo steel in 20-ton basic arc furnaces flushed with A to lower the H_2 content. Procedure. Effect of treatment on composition, especially H_2 and N_2 contents at different stages of heat; how much A gas to use for best results; effect of atm. humidity. (HB abstract)

Kasatkin, B. S.
BRITTLE FAILURE OF LOW-CARBON STEEL WELDS [Khrupkoye Razrusheniye Metalla Nizkouglerodistykh Svarnykh Shvov]. Feb 60, 1900 words.
Order from HB $4.80 HG-4786

Trans. of Avtomat[icheskaya] Svarka (USSR) 1958, v. 11, no. 11, p. 71-80.

Study of characteristics of low carbon steel welds in regard to ductile-brittle transition temperature. Weld metal composition: 0.05% C, 0.5 Mn, 0.22 Si, 0.038 P, 0.032 S. Particulars on electrode wire and flux compositions. Testing setup for cold shortness and procedure. Etchants for primary and secondary structures. Notched-bar toughness of weld metal as function of testing temperature: critical embrittlement temp. Micrographic analysis results and their interpretation in regard to development of microcracks. Definition and characteristics of the two stages leading to brittle failure; their similarity with those of hot-rolled low-carbon basic open-hearth steel. (HB abstract)

Kravchenko, V. F., Enekes, S. and others.
EFFECT OF VIBRATIONS ON QUALITY OF [RIMMED-STEEL] INGOTS. Feb 60, 4600 words.
Order from HB $12.50 HB-4759

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metall[urgiya] (USSR) 1959, no. 7, p. 23-34.

Study of optimum conditions of vibration (duration, starting time, etc.) for higher pouring rates of rimming steel, improved ingot structure, better distribution of blowholes and nonmetallic inclusions, and less segregation. Experimental procedures; arrangement for determining volume and composition of gases escaping during solidification. Effect of vibration at 1470 cpm and 1 mm (0.04 in) amplitude on rate of solidification; on thickness of sound ingot skin; rate of gas evolution; distribution of oxygen and nitrogen, and nonmetallic inclusions (sulfides, oxides); and on chemical inhomogeneity of ingot. Vibration time needed for a good thickness of sound ingot skin. Savings on pouring time made possible by vibration. Mechanism of formation of rimmed-steel ingots: location of blowhole nuclei and precipitation of sulfides. (HB abstract)

Leitner, F. and Rosegger, R.
EFFECT OF COOLING AND SPEED OF BILLET MOVEMENT IN CONTINUOUS CASTING UPON HOMOGENEITY OF CARBON CONSTRUCTIONAL STEEL. Feb 60, 1300 words.
Order from HB $3.70 HB-4772

Trans. of Berg- und Hüttenm[ännische] Monatshefte (Austria) 1959, v. 104, no. 10/11, p. 222-224.

Plant-scale trials on effect of intensity of secondary cooling and rate of billet withdrawal on soundness of 0.15-0.45% C steel billets from electric furnace.... Results of study; most efficient arrangement of spray nozzles. (HB abstract)

L'vov, [G.] K.
PECULIARITIES OF TRANSFORMATIONS DURING RAPID RECRYSTALLIZATION OF STEEL. [Osobennosti Prevrashcheniy pri Skorostnoy Rekristallizatsii Stali] Feb 60, 800 words.
Order from HB $2.30 HB-4716

Trans. of Nauchn[yye] Doklady Vyssh[ey] Shkoly. Metallurgiya (USSR) 1959, no. 1, p. 203-205.

Promise of a basically new process annealing method for involving induction heating, for cold-reduced steel (strip, wire, etc.) consisting in rapid brief heating to a high temperature and fast cooling. Economies possible with equipment needed. Effect of holding time (1-4 seconds) at 650 and 850°C upon mechanical properties and microstructure of 0.08% C rimmed boiler steel. Particulars on the four periods of changes in properties and structure. Absence of solution of carbide in ferrite; resistance to aging of steel subjected to proposed process anneal. (HB abstract)

Moldavskiy, O. D.
EFFECT OF STEEL COMPOSITION AND DEOXIDIZING PRACTICE ON PHOSPHORUS SEGREGATION. Feb 60, 1000 words.
Order from HB $2.70 HB-4784

Trans. of Akad[emiya] Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya]: Met[allurgiya] i Toplivo, 1959, no. 5, p. 126-127.

Study of the possibilities open for minimizing the harmful effects of phosphorus in steel, such as segregation and intergranular precipitation, with special reference to action of silicon, carbon and various deoxidizers, on phosphorus segregation. Experimental procedure. Metallographic findings as to effect of higher or lower carbon and silicon on behavior of phosphorus. Effect of deoxidation of steel with 0.3% Al; minimum aluminum addition needed for neutralizing the harmfulness of P. Conclusions. (HB abstract)

Paidassi, J.
A STUDY OF THE PRECIPITATION OF Fe_3O_4 IN THE SCALE PRODUCED ON IRON AT HIGH TEMPERATURES. [1960].
Order from BISI £7 5s BISITS-1469

Trans. of Rev[ue de] Mét[allurgie] (France) 1955 [v. 52] no. 11, p. 869-886.

The precise conditions of formation of Fe_3O_4 in iron oxide films has been studied by the microscopical examination of iron specimens heated at elevated temperatures. The formation of Fe_3O_4 inside films of ferrous oxide is due to the decomposition of FeO during cooling. (J. Iron Steel Inst. abstract)

Pridantsev, M. V. and Levizon, Kh. Sh.
THE EFFECT OF HEAT TREATMENT ON THE PROPERTIES OF RIMMING LOW-CARBON STEELS (Vliyaniye Termicheskoy Obrabotki na Svoystva Kipiyashchikh Staley). Aug 58 [14]p. 6 refs. C. T. S. no. 492.
Order from LC or SLA mi$2.40, ph$3.30 60-15575

Trans. of Stal' (USSR) 1956 [v. 16] no. 11, p. 1006-1015.

The application of heat treatment to low-carbon rimming steels, possessing rapid rates of cooling, makes it possible to produce a practically non-aging metal with improved physico-mechanical characteristics and a considerable economic effect, fully adequate to the replacement of killed steels of corresponding composition. (Author)

Rossard, C. and Blain, P.
INFLUENCE OF VARIOUS TRACE ELEMENTS ON THE FORGEABILITY OF STEEL. [1960].
Order from BISI £3 BISITS-1565

Trans. of Rev[ue de] Mét[allurgie] (France) 1959 [v. 56] p. 175-180.

Samarin, A. M. and Novik, L. M.
LADLE AND MOULD TREATMENT OF LIQUID STEEL UNDER VACUUM (Obrabotka Zhidkoy Stali pod Vakuumom v Kovshe i Izlozhnitse). July 58, 9p. C. T. S. no. 494.
Order from LC or SLA mi$1.80, ph$1.80 60-13323

Trans. of [Akademiya Nauk SSSR]. Inst[itut] Metall[urgii]. Trudy, 1957 [v. 1] p. 39-50.

Laboratory and industrial experiments carried out in 1952-1954 on the vacuum treatment of effervescing Bessemer steel, in the ladle and in the mould, showed that at a residual pressure of 70 to 140 mm Hg, the processes of deoxidation of the metal by carbon and separation from the steel of dissolved gases, occur with great intensity. In the course of vacuum treatment, which lasts 12 to 14 min, the oxygen content of effervescing steel diminishes 4 to 10 times, the nitrogen content decreases by 30 to 50 percent; at the same time the effervescing steel becomes still and contains 0.004 to 0.005 percent O_2. Sulphur prints of ingot and rolled specimens of effervescing steel, which had been treated under vacuum in the ladle, differ little from prints of dead-melt steel in the majority of cases. The steel is sound. Zonal segregation is nearly absent. Segregation of elements in the ingot is weakly defined. Vacuum treatment raises the plasticity of Bessemer steel, particularly at temperatures below zero, and displaces the onset of cold shortness to the -30° to -50°C region.

Sejnoha, R. and Prochazka, L.
CONTRIBUTION TO THE PROBLEM OF THE PRODUCTION OF N 80 NORMALISED OIL TUBES FROM MANGANESE STEEL. [1960]
Order from BISI £5 BISITS 1539

Trans. of Hutnicke Listy (Czechoslovakia) 1959 [v. 14] no. 7, p. 569-573.

Tavadze, F. N. and Bayramashvili, I. A.
NATURE OF THE X-PHASE [IN CAST IRON] [O Prirode X-Fazy]. Feb 60, 2000 words.
Order from HB $4.75 HB-4520

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 11, p. 18-20.

Ordinary gray irons, malleable, and nodular irons studied for inclusions described as X and phase and X' phase. Effect of Si on microhardness of ferrite and of X' phase. X' phase taking the place of graphite in malleable and ductile irons. Role of oxidation... Distinct features of X and X' explained by micrographs. (HB abstract)

Tavadze, F. N. and Essen, M. A.
TRANSFORMATION OF GRAPHITE INCLUSIONS IN CAST IRON SATURATED [IN SOLID STATE] WITH MAGNESIUM. Feb 60, 2300 words.
Order from HB $4.90 HB-4713

Trans. of Liteynoye Proizvodstvo (USSR) 1959, no. 6, p. 15-18.

Arrangement and procedure for study of inoculation of cast iron in solid state with magnesium (up to 2%). Variation of carbon content of specimens and effect of pressure acting on them while being inoculated with magnesium. Sequence of changes from flake to nodular shape of graphite and effect of properties of diffusing element on them. Diffusion of magnesium. Factors affecting inoculation of cast iron in liquid and solid states. (HB abstract)

Veh, P. O.
PRESENT-DAY POSSIBILITIES OF LOW-SCALE AND SCALE-FREE HEATING OF STEEL FOR HOT WORKING. [1960].
Order from BISI £4 BISITS 1625

Trans. of Industrie Anzeiger (West Germany) 1959 [v. 81] 7 Apr, p. 410-412.

The use of combustion gases as protective atmospheres for furnaces and various types of furnaces and induction-heating equipment are reviewed and diagrams are given. (J. Iron Steel Inst. abstract)

Wartmann, R.
CALCULATION OF THE REHEATING PROCESS OF STEEL INGOTS AND COMPARISON WITH THE RESULTS AS MEASURED. [1960].
Order from BISI £5 5s BISITS 1439

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] 14 May, p. 703-711.

The problem of reheating large steel ingots without inducing too large temperature differences between surface and core is treated mathematically. The results of the numerical calculations carried out on computers are in good agreement with experimental results.

Yefroymovich, Yu. Ye.
SIMULATING AND CONTROLLING COMPUTERS FOR ARC STEELMAKING FURNACES [Modeliruyushchiye i Reguliruyushchiye Vychislitel'nyye Ustroystva dlya Dugovykh Staleplavil'nykh Pechey]. [1960].
Order from BISI £6 5s BISITS 1528

Trans. of Stal' (USSR) 1957 [v. 17] July, p. 602-608.

An improvement in methods of control of the electrical working conditions and recording of the electrical parameters of arc steelmaking furnaces, employing computers and automatic simulators, permits a substantial improvement in the technical and economic indices for the operation of the furnace and in the quality of the metal melted. (Author)

Ziegler, R. and Gerstner, R.
THE VELOCITY OF SOUND AS A CHARACTERISTIC VALUE FOR THE QUALITY OF CAST IRON. [1960].
Order from BISI £4 15s BISITS 1496

Trans. of International Foundry Congress (No. 24) 1957. [Proceedings] no. 6, p. 133-157.

Ultrasonic radiation is used and the approximate relationship of modulus of elasticity related to amount of graphite, degree of saturation, tensile stress, disintegration of texture and amount of spherolites in spheroidal iron. (J. Iron Steel Inst. abstract)

Structural Metallurgy and Corrosion

Al'tman, M. B. [Slotin, V. I.] and others.
CHANGE IN STRUCTURE AND PROPERTIES OF ALUMINUM AND ITS ALLOYS WHEN TREATED WITH ULTRASONIC VIBRATIONS. Feb 60, 2400 words.
Order from HB $6.25 HB-4776

Trans. of Akad[emiya] Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya]: Metall[urgiya] i Toplivo, 1959, no. 3, p. 88-91.

Experimental study of effect of ultrasonic vibrations on Al and Al-base melts, 22 lbs. in weight, using titanium (+ Cr+Al) coupling rods (wave guides). Materials studied: pure Al; Al-Si-Mg medium hard alloy, and Al-Si-Cu-Mg hard casting alloy. Procedure; method of introducing ultrasonic vibrations into melts. Results of action of vibrations throughout the melts on micro gas bubbles, grain structure, and mechanical properties. Advantage of slow cooling rates. Possibility of inoculating the melts with high-melting components eroded from coupling rod during vibrational treatment. Ti content of melts treated as depending on treating time; effect of Ti on mechanical properties. (HB abstract)

Bogatyreva, E. V. and Balezin, S. A.
SODIUM PHENYLACETATE AS AN INHIBITOR OF CORROSION OF METALS IN NEUTRAL MEDIA. [1959] 8p.
Order from ATS $12.85 ATS-48M37R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zaved[eniy]. Khim[iya] i Khim[icheskaya] Tekhnol[ogiya] (USSR) 1959, v. 2, no. 1, p. 25-29.

Cupr, V.
ON THE PROPERTIES AND STRUCTURE OF PHOSPHATE COATINGS. Feb 60, 1220 words.
Order from HB $2.90 HB-4783

Trans. of Metalloberfläche (West Germany) 1960, v. 14, no. 1, p. B1-B2.

Study of chemical composition and crystal structure of phosphate coatings, with special reference to the changes they undergo when being dried or subjected to pressure in the various cold-shaping processes..... Aging process- its duration and changes caused by it. Why are phosphate coatings able to stand up under temps. up to 1830°F during forming operations? Reason of need for frequent replacement of baths; pure tertiary zinc phosphate studied by various methods; effect of Fe.. on manner the crystal water is bound. (HB abstract)

Radeker, W.
POSSIBILITY OF CO-EXISTENCE OF STRESS CORROSION AND PITTING CORROSION IN MILD STEELS. [1960].
Order from BISI £2 10s BISITS 1637

Trans. of Arch[iv für das] Eisenhütt[enwesen] (West Germany) 1959 [v. 30] Dec, p. 747-750.

In two cases of corrosion under working conditions it was found that intercrystalline stress corrosion or transcrystalline stress corrosion can occur together with local pitting-type corrosion. The attacking media can naturally act in one way or the other. In the presence of intercrystalline cracks a laboratory test showed that at strong tensile stresses the surface closely resembled that of grain boundary corrosion, whilst local pitting was predominant at low stresses. The appearance of the surface evidently depended on the relative rates at which the two corrosion phenomena developed. Many failures observed in practice, for which no satisfactory explanation has been advanced so far, may well have been due to similar causes. (Author)

Romashkin, Yu. P.
ON THE PROBLEM OF DETERMINATION OF DIFFUSION COEFFICIENT IN THE PLASTIC DEFORMATION OF SOLID, tr. by Lydia Venters. Oct 59, 12p. 5 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3863

Trans. of *Fizika Metallov i Metallovedeniye (USSR) 1959, v. 7, no. 6, p. 825-831.

A solution of the diffusion problem for the linear case in a medium to be deformed is suggested, which aims at the determination of the distribution of the substance along the coordinate in whose direction the diffusion occurs. Equations are derived for the computation of the correction multiplier, $a = D_1/D$, where D_1 is the measured diffusion coefficient and D is that to be determined for the case of any dependence of the deformation on time.

Ruttmann, W. and Schinn, R.
SUMMARY OF THE RESULTS OF JOINT LONG-TIME CREEP TESTS; CONCLUSIONS FOR STEAM-PLANT CONSTRUCTION. [1960].
Order from BISI 4 15s BISITS 1515

Trans. of V[ereinigung der] G[rossel] b[esetzer. Mitt[eilungen] (West Germany) 1958, Dec, p. 411-420.

Savitsky, Ye. M. and Terekhova, V. F.
STUDY OF MICROSTRUCTURE AND PHYSICO-MECHANICAL PROPERTIES OF RARE EARTH METALS AND THEIR ALLOYS. 27 Jan 60, 10p. 13 refs. JPRS: L-2009-D.
Order from OTS $0.50 60-31031

Trans. of mono. Redkozemel'nyye Elementy (Rare Earth Elements) p. 300-306.

Taganov, K. I.
CERTAIN SPECTROSCOPIC INVESTIGATIONS OF THE POLARITY EFFECT OF THE ELECTRICAL EROSION OF METALS. [1959] 3p. 2 refs.
Order from MDF $2.00 MDF T-143

Trans. of *A[kademiya] N[auk] SSSR. Izv[estiya]. Ser[iya] Fiz[icheskaya] 1959, v. 23, no. 9, p. 1097-1099.

The investigations were by the false electrode method of K. I. Taganov (Akad. Nauk SSSR Izvest. Ser. Fiz. 14: 634, 1950). The polarity effect was estimated qualitatively by means of the quantity I_-/I_+ where I_- is the spectral line intensity in the spectrum of the products transferred from the cathode and I_+ is the intensity of the same line during combustion of the products transported from the anode. The transport was made by copper false electrodes from identical samples. The transport of zinc, iron and molybdenum (metals which differ substantially in their electrical erosion immunity) was investigated in a low-voltage discharge. Experiments showed the difference in the quantitative changes in the transport from the cathode and the anode as the discharge parameters were changed. An increase in the interelectrode spacing (for a 260-v voltage and a discharge circuit capacity of 1000 μf) leads to a decrease in the transport, especially from the anode, in all cases. However, the transport from the cathode remained practically invariant for zinc within the same range of variation of the interelectrode spacing (from 0.3 to 1.5 mm). This indicates the predominance of a torch mechanism and the transport of the substance from the cathode in a given light source. The transport for all the metals increased in the localized discharge, due to a concentrated liberation of discharge energy on a limited section of the metal surface. Processes occurring in the contact zone of two heterogeneous metals play a substantial part in contact-electric spark erosion of metals. By estimates of the magnitude of the I_-/I_+ ratio (Bi 3067.7 Å line), it was established that the transport from the anode is 2.5 times greater than transport from the cathode with copper-bismuth vapor and 6.3 times greater with the vapor of copper and bismuth-tin alloy. This suggests that the principal heat liberation occurs at the anode.

Wiester, H. -J. and others.
PRECIPITATION PROCESSES IN AUSTENITIC CHROME-NICKEL STEELS AND THEIR EFFECTS ON SUSCEPTIBILITY TO INTERGRANULAR CORROSION (WITH DISCUSSION). [1960].
Order from BISI 10 BISITS 1627

Trans. of Arch[iv fur das] Eisenhut[tenwesen] (West Germany) 1959 [v. 30] May, p. 299-309.

The relationship between precipitation processes and tendency to grain breakdown was investigated on two austenitic Cr-Ni steels, one of which was stabilised with Nb and Ta. It was shown that the transition from a resistant grain structure to one with a tendency to breakdown was always connected with the occurrence of Cr carbides of the form $M_{23}C_6$ at the grain boundaries. With higher temperatures and longer annealing times, precipitation within the grain also took place. (J. Iron Steel Inst. abstract)

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

*ATOMNAYA ENERGIYA (USSR) 1959, V. 7, NO. 5, P. 417-504 (Atomic Energy). [1960] 1v. SOV-89-7-5-(1-32)/32.
Order from OTS $0.60, $3.50/6 mo. PB 141 082T-26
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Baranovskiy, V. I., Larionov, O. V. and others.
A NOTE ON NATURAL NEUTRON ACTIVITY OF ARSENIC AND ANTIMONY [K Voprosu o Yestestvennoy Neytronnoy Aktivnosti Mysh'yaka i Sur'my] tr. by A. L. Monks. 28 Oct 59, 3p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3869

Trans. of Leningrad U. Vestnik (USSR) 1959 [v. 14, no. 10] p. 25-26. [Seriya Fiziki i Khimiyi] no. 2.

The assumptions of M. Serwinski and A. Dorabialska (Zeszyty Nauk. Politech. Lodz. Chem. 1: 103 and 117, 1954; and 2: 39, 1955) concerning the possibility of a spontaneous neutron decay of As^{75} and Sb^{123} nuclei are shown to be contradicted by energetic considerations and by special experiments.

Elementary Particles

Azimov, S., Birger, N. and others.
ON THE MASSES OF COSMIC RAY PARTICLES. [1959] 7p. 7 refs. T/L 797; M 1005.
Order from LC or SLA mi$1.80, ph$1.80 60-13708

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1951, v. 78, no. 3, p. 447-450.
Another translation is available from SLA as RT-599 [4]p.

Data were obtained that show that if particles with masses intermediate between the mass of the pi mesons and the proton, and with lifetime $>10^{-8}$ sec exist in cosmic rays at a height 3 to 4 km then their number cannot exceed 10% of the number of protons stopping in the same filters (30 to 105 g/cm^2 Pb).

Blokhinze, G.
FUNDAMENTAL PARTICLES AND THE FIELD. [1959] [13]p. 12 refs. M216.
Order from LC or SLA mi$2.40, ph$3.30 59-19109

Trans. of Uspekhi Fizichesk[ikh] Nauk (USSR) 1950, v. 42, p. 76-92.

Nuclear Engineering and Power

Kutateladze, S. S., Borishanskiy, V. M. and others.
LIQUID-METAL HEAT-TRANSFER AGENTS (Zhidkometallicheskiye Teplonositeli). [1959] [221]p. 81 refs. F-TS-9721/V.
Order from LC or SLA mi$9.90, ph$34.80 60-13100

Trans. of Atomnaya Energiya (USSR) 1958, Suppl. 2.

Data on the study of heat emission from liquid metals, obtained during the past 10 years in the USSR and abroad in connection with problems of nuclear power engineering, are systematized and generalized under the following topic headings: (1) fundamental properties of liquid metals, (2) areas of application of liquid-metal heat carriers, (3) hydraulic resistance in the flow of liquid metals, (4) turbulent heat transfer in liquid metals, (5) heat emission in flow through tubes, (6) heat emission in longitudinal flow around plates, (7) heat emission in transverse flow around cylinders, (8) heat emission in free convection, (9) heat emission in condensation of vapor, (10) heat emission in boiling, (11) heat-exchange apparatus, (12) durability of heat-resistant materials in liquid metals, and (13) measuring instruments. About half of the references are Soviet.

Stefanescu, Alex.
THE RUMANIAN NUCLEAR REACTOR. 3 Oct 58, 6p. JPRS(DC)-L-830.
Order from OTS $0.50 PB 141 280T

Trans. of Energetica (Rumania) 1957, v. 5, no. 11, p. 522-524.

PERSONNEL SUPPLIES AND PERSONAL EQUIPMENT

Migay, K. B.
WORKING CLOTHES FOR THE PROTECTION OF MAN AGAINST ATMOSPHERIC LOW TEMPERATURES, tr. by Claudius F. Mayer. June 59 [8]p. (3 figs. omitted) H 3827.
Order from OTS $0.50 59-21095

Trans. of mono. Spetsodezhda dlya Zashchity Cheloveka ot Niznikh Temperatur Vozdukha, p. 23-28.

Four types of working clothes were investigated. These were (1) moleskin overalls, (2) moleskin overalls lined with cotton net and coarse calico, (3) cotton net underwear and moleskin overalls, and (4) ordinary cotton jacket and trousers. The investigations showed that with respect to the temperature of the skin, and the air temperature beneath the clothing, working apparel no. 1 gave the worse results, no. 2 next, then no. 3 and no. 4, the ordinary cotton apparel gave the best thermal indices.

PHYSICS

REFERATIVNYY ZHURNAL. FIZIKA (USSR) 1959, NO. 11, ABSTRACTS 24161-26368 (Soviet Abstracts. Physics). 8 Mar 60, 124p. JPRS: 2343.
Order from OTS $1.26 60-11366

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia, excluding the USSR.

*ZHURNAL TEKHNICHESKOY FIZIKI (USSR) 1959, V. 29, NO. 8, P. 933-1064 (Journal of Technical Physics). [1960] 1v. SOV-57-29-8-(1-19)/19.
Order from OTS $1.00, $5.50/6 mo. PB 141 053T-16
Foreign $1.25, $7.00/6 mo.

Consists of abstracts in English.

Kukanov, A. B.
ON THE QUESTION OF THE POLARIZATION OF ELECTRON WAVES UPON REFLECTION FROM A FLAT METALLIC SURFACE. [1959] 10p. 9 refs.
Order from MDF $5.00 MDF K-203

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Fizika (USSR) 1959, no. 4, p. 3-12.

The problem of the reflection of electron waves from a plane metallic surface (taking the force of the electrostatic image into account) is solved by the methods of relativistic quantum mechanics. The analysis is limited to states with positive energies. The concept of the vector of the spin in the mean (where the words "in the mean" will be omitted) is used as the basic concept in investigation of the polarization of electron waves. The formulas obtained, which define the direction of the spin vector of the reflected particles as a function of the direction of the spin vector of the incident particles, the angle of incidence and the quantity $\beta_0 = k/K$, wherein both the reflected and the incident particles are considered far from the metal ($|2ik_3z| \gg 1$). Under this condition it has been shown, in particular, that the direction of the spin vector does not change with reflection if it lies in a plane perpendicular to the plane of incidence and the flat metal surface for the incident particles. In the nonrelativistic case any direction of the spin vector is conserved with reflection. It is shown that the states with longitudinal polarization are transformed, under reflection, into states with transverse polarization (the spin vector lies in the incident plane) and conversely, if the condition $\tan\Theta = \sqrt{1-\beta_0^2}$ is satisfied for the angle of incidence. (Author)

Shevele, V. and Moskalyuk, A.
GENERAL MEETING OF THE DEPARTMENT OF PHYSICOMATHEMATICAL SCIENCES OF THE ACADEMY OF SCIENCES UKRAINIAN SSR. 8 Feb 60, 6p. JPRS: 2201-N.
Order from OTS $0.50 60-11245

Trans. of Ukrainskiy Matematicheskiy Zhurnal (USSR) 1959, v. 11, no. 3, p. 336-338.

Tolstoy, D. M. and Pan, Bin-yao.
ON THE DIFFERENCE BETWEEN THE FORCES OF STATIC-DYNAMIC FRICTION (O Skachke Sily Treniya pri Ostanovke). July 58, 6p. 13 refs. C. T. S. no. 460.
Order from LC or SLA mi$1.80, ph$1.80 60-13313

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 114, no. 6, p. 1231-1234.

In all investigated cases of friction with boundary lubrication, and at the same time for surfaces with naturally absorbed lubricants, the velocity characteristic of the friction force differ considerably from linear function. At $100>v>15\mu$/sec, the slope of the characteristic curve is comparatively small, but at further velocity decrease, the slope rises sharply and continuously. Measurements showed that the instantaneous jump of the friction force does not occur, i.e., the starting value of the static friction force coincides with $f_0 = \lim_{v \to 0} f$ in the region of inaccurate force measurements, which is not more than 1 per cent of f_0.

Acoustics

THE GERMAN PERIPHONE. 2 Sep 47, 8p. USL rept. no. 80.
Order from LC or SLA mi$1.80, ph$1.80 59-16649

Trans. of mono. from Atlas Werke, Bremen, 1940.

The Periphone is an ultra acoustic sending or receiving device which can be lowered from the ship's hull and trained in different directions in the horizontal plane. In general it is so built that when not in use it can be retracted by the turning wheel into a nitch built into the floor of the ship so that it no longer sticks out of the hull. The Periphone can be used for (1) discovery and direction finding for invisible ships by listening to the screw sounds from these ships (noise location), (2) discovery and distance measuring by use of the returning echo from a transmitted impulse which is sent out from the equipment in the horizontal direction of the target (horizontal echo ranging); and (3) employment in ultrasonic signal and telephone conversations. (Extracted from the report)

Natta, G., Baccareda, M., and Butta, E.
THE ELASTIC AND INELASTIC BEHAVIOR OF SOME ISOTACTIC POLYMERS. [1959] [8]p. 12 refs.
Order from SLA mi$1.80, ph$1.80 60-14217

Trans. of [Ia] Chimica e l'Industria (Italy) 1959, v. 41 [no. 8] p. 737-740.

The mechanical dynamic properties of linear polymers of α-olefins (polypropylene, polybutylene, polystyrene) containing crystalline fractions of various steric purity have been determined. The transitions determined by the characteristic points of the sound velocity curve and by the internal dissipation in function of the temperature assume positions and magnitudes which depend on the amorphous polymer content and on the steric purity of the crystalline polymer. Relatively high values of the internal dissipation over fairly wide temperature ranges are observed only in products having a high content of noncrystalline components. (Author)

Nomoto, Otohiko.
CLASSIFICATION OF THE OPTICAL METHODS OF VISUALIZATION OF ULTRASONIC WAVES. II. MECHANISMS OF THE IMAGE FORMATION AND THE CHARACTERISTICS OF THE IMAGES. Dec 59, 26p. (refs. omitted).
Order from SLA mi$2.70, ph$4.80 60-14110

Trans. of [Nihon] Onkyo Gakkaishi (Japan) 1958, v. 14, no. 4, p. 291-299.

Mechanism of the image formation by the optical methods of the visualization of ultrasonic waves has been discussed in relation to the characteristics of the images obtained. The images obtained by the various methods, such as (A) the Schlieren method, (B) polarization method, (C) phase-shift method, (D') geometrical optical image, and (D) Fresnel diffraction image, have different characteristics in regard to the plane of focus of the image, and the position of the wave-surfaces, and these are also dependent on the experimental arrangements, sound intensity, and the nature of the waves (progressive or standing waves) in some cases. (English abstract with original paper)

Electricity and Magnetism

Bonch-Bruyevich, V. L.
ON FERROMAGNETICS WITH TWO CURIE POINTS. [1959] 2p. 3 refs.
Order from MDF $2.00 MDF B-152

Trans. of *Fiz[ika] Met[allov i] Metallov[edeniye] (USSR) 1959, v. 8, no. 2, p. 309-310.

Calculations indicate that the predicted effect of the disappearance of ferromagnetism at low temperatures should be sought in solid solutions of nonferromagnetic substances in ferromagnetics. (See also 60-12252 or MDF B-148)

Miryasov, N. Z. and Parsanov, A. P.
MAGNETIC PROPERTIES AND STRUCTURE OF MANGANESE-BORON ALLOYS. [1959] 9p. 9 refs.
Order from MDF $4.50 MDF M-126

Trans. of Moscow U. Vestnik. Seriya M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959, v. 14, no. 1, p. 43-50.

The temperature dependence of the saturation magnetization σ_s, the Curie point Θ, and the structure of binary alloys of the Mn-B system with from 5 to 52.7 at.-% B were investigated. In this range of concentrations, all the alloys with a boron content greater than 33% appeared to be ferromagnetic. The temperature dependence of the saturation magnetization σ_s is described well in the 77° to 300°K range by the formula $\sigma_s = \sigma_0(1 - \alpha T^2)$, where σ_0 has been determined by extrapolation to 0°K. An increase in the boron content above 33% causes a rise in the magnetization σ_0, which achieves its maximum value for 50 at.-% B. As the boron content increases further, σ_0 diminishes. The Curie point of all the alloys appeared to equal 289 ± 4° C. Investigations of the structure of the alloys indicate the existence of four compounds: Mn_4B, Mn_2B, MnB and Mn_3B_4. Results of investigations of the magnetization σ_0, the Curie point Θ and the alloy structure afford a basis for stating that MnB is the ferromagnetism carrier in this system. The spacing between the Mn-Mn atoms in this compound satisfies the positivity condition of the exchange integral if the diameter of the unfilled d-shell is taken to be 1.71 A (according to Slater). The absolute saturation for the MnB compound reaches 140 Ga. cm^3/g, which is almost two and one-half times greater than σ_0 for nickel; the mean atomic magnetic moment is 1.65 Bohr magnetons. (Author)

Poplavskiy, R. P.
POTENTIAL DISTRIBUTION IN A SPHERICAL CONDENSER UNDER CONDITIONS OF SATURATION CURRENT. 1959, 13p. 5 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3937

Trans. of Zhurnal Tekhnicheskoy Fiziki (USSR) 1950, v. 22, no. 2, p. 149-159.

The substitutions used by V. L. Kan (Zhur. Tekh. Fiz. 18: 483, 1948) for his exact solution of the case of limited space charge (the "Langmuir" problem) are used in the present solution for the case of saturation current. To determine the integration constants, the solution is reduced to an equation solved by the Airy functions.

Sobolev, L. V.
VOLT-AMPERE CHARACTERISTICS AND TEMPERATURE DEPENDENCE OF THE CONDUCTIVITY OF NICKEL-ZINC FERRITES. [1959] 5p. 4 refs.
Order from MDF $2.50 MDF S-147

Trans. of Moscow U. Vestnik. [Seriya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959 [v. 14] no. 1, p. 117-120.

Yakovlev, E. N.
FERROMAGNETIC RESONANCE IN A UNIAXIAL FERRITE WITH TWO SUBLATTICES. [1959] 6p. 4 refs.
Order from MDF $3.00 MDF I-121

Trans. of *Fiz[ika] Met[allov] i Metallov[edeniye] (USSR) 1959, v. 8, no. 2, p. 165-169.

Resonance frequencies are calculated for two orientations of the constant magnetic field: along the easy magnetization axis and perpendicular to this axis. (Author)

Molecular Physics and Spectroscopy

Babayeva, A. V.
ABSORPTION SPECTRA OF COMPLEX COMPOUNDS OF NOBLE METALS (CHLOROMETALLATES OF THE PLATINUM GROUP). [1959] 9p. 33 refs. T-3108.
Order from LC or SLA mi$1.80, ph$1.80 60-14164

Trans. of Akademiya Nauk SSSR. Otdel[eniye] Khim[icheskikh]. Izvestiya, 1943, no. 3, p. 171-177.

The light absorption of aqueous solutions of ammonium chloropalladite, ammonium chlororhodiate, ammonium chloroiridite and chloroiridate, potassium chloroplatinite and sodium chloroplatinite was studied. It was shown that three absorption bands exist in the absorption spectrum of these complex compounds in the region of wavelengths from 600 to 220 mμ. Their position is determined by the nature of the central atom, its atomic weight and charge. (Author)

Kirchhoff, G. and Bunsen, R.
CHEMICAL ANALYSIS BY MEANS OF SPECTRAL OBSERVATIONS, SECOND PAPER (Chemische Analyse durch Spectral Beobachtungen, Zweite Abhandlung). [1959] [6]p.
Order from SLA mi$1.80, ph$1.80 59-20874

Trans. of Annalen der Physik (Germany) 1861, v. 113, p. 337-339.

Polyakov, P. M. and Rusanov, A. K.
SPECTROGRAPHIC ANALYSIS OF RARE EARTH ELEMENTS. 18 Feb 60, 13p. 6 refs. JPRS: 2261.
Order from OTS $0.50 60-11307

Trans. of Zavodskaya Laboratoriya (USSR) 1957 [v. 23] no. 5, p. 564-569.

Veselago, V. G.
DETERMINATION OF THE STRUCTURE AND DIPOLE MOMENT OF THE $HDSe$ MOLECULE FROM ITS MICROWAVE SPECTRUM (Opredeleniye Struktury i Dipol'nogo Momenta Molekuly $HDSe$ iz yeye Mikrovol'novogo Spektra) tr. by M. Slade. [1959] [14]p. 19 refs. Trans. no. 4584.
Order from LC or SLA mi$2.40, ph$3.30 60-15371

Trans. of *Optika i Spektroskopiya (USSR) 1959, v. 6, no. 4, p. 450-456.

Measurements were made of the rotational spectrum of the $HDSe$ molecule in the range of centimetre waves. The dipole moment of the molecules is 0.62 debyes. The structure of the molecule was determined with allowance for centrifugal distortion. The effective Se-H and Se-D distances are 1.452 and 1.446 A, respectively. The H-Se-D angle is $90^{\circ}17' \pm 50'$.

Solid State Physics

GROWTH OF CRYSTALS: SELECTED ARTICLES. [1959] [287]p. 191 refs. F-TS-9447/V.
Order from OTS $4.00 60-21207

Trans. of mono. Doklady na Pervom Soveshchanii po Rostu Kristallov (5-10 Marta 1956 G) Moscow, 1957, p. 74-109, 128-137, 178-189, 229-304, 311-319, 326-340, 351-373 and abstract trans. of p. 110-127, 138-158, 205-211 and 320-325.

Contents:
Effect of diffusion of impurities in a melt on their distribution in the crystal during directed crystallization, by A. I. Landau
On the nucleation of crystals in binary alloys, by Ya. V. Grechniy
A contribution to the question of the formation and growth of negative crystals (pores) arising from supersaturated solutions of vacancies in the crystal lattice, by Ya. Ye. Geguzin

Thermal and diffusional processes during the growth of crystals, by G. P. Ivantsov
The influence of modifiers on the process of ingot crystallization, by V. Ye. Neymark and A. I. Dukhin
Study of the processes of crystallization from a melt, by I. N. Fridlyander
Artificial fluorite, by I. V. Stepanov and P. P. Feofilov
The growing of single crystals of lithium fluoride and sodium fluoride with a high transparency in the ultraviolet and infrared regions of the spectrum, by M. A. Vasil'yeva
Methods of growing luminescent crystals for scintillation counters, by L. M. Belyayev, B. V. Vitovskiy, and G. F. Dobrzhanskiy
Apparatus and methods of growing single crystals of semiconductors, by D. A. Petrov and V. S. Zemskov
First experiments in growing large mica crystals, by K. V. Kapralov, Yu. V. Koritskiy and N. N. Sheftal'
Synthetic mica, its properties and application, by I. I. Yamzin and M. S. Leyzerzon
On the growing of single crystals of sorbitol hexaacetate, by I. S. Rez and L. I. Tsinober
The preparation, dielectric and optical properties of single crystals of solid solutions (Ba - Sr)TiO_3, by A. L. Khodakov, M. L. Sholokhovich, Ye. G. Fesenko, and O. P. Kramarov
A new technique of studying the phase transformations under high pressures and temperatures and its application to the study of the polymorphism of phosphorous, by V. P. Butuzov and S. S. Boksha
A new type of autoclave for hydrothermal synthesis, by V. P. Butuzov, G. P. Shakhovskoy and S. P. Smirnov
Technique of synthesis of refractory crystals insoluble in water, by I. N. Anikin
A precision method of determining the saturation temperature of transparent solutions, by A. N. Kovalevskiy
Crystallization of viruses, by V. L. Ryzhkov
Some questions of the kinetics of crystal growth, by B. A. Koptsik
Experience of the work of the student practical course in the technology of artificial crystal growing, by N. L. Pokrovskiy
Crystallization of admixtures on the surface of a crystal investigated by means of an electron and ion projectors, by A. P. Komar and Yu. N. Talanin
Certain characteristics of the growth of crystals of new phase in solid metal solutions observed by means of an electron microscope, by N. N. Buynov
Mechanism of crystallization and the structure of alloys of eutectic composition, by P. S. Vadilo
New data on the reaction of an organic admixtures with inorganic crystals, by Ye. N. Slavnova
On the mechanism of formation of spheroidal graphite in cast iron, by I. Ye. Bolotov, V. I. Syreyshchikova and S. G. Guterman
Installation for obtaining and cleaning high melting monocrystals by the zonal melting method, by V. P. Butuzov and V. V. Dobrovenskiy

Arbuzov, A. Ye., Valitova, F. G. and others.
PARAMAGNETIC RESONANCE OF α, α-DIPHENYL-β-PICRYL-HYDRAZYL OBTAINED FROM VARIOUS SOLVENTS [O Paramagnitnom Rezonanse α, α-Difenil-β pikril-gidrazila, Poluchennogo is Razlichnykh Rastvoriteley] tr. by Monica Nees. 11 Jan 60, 7p. 13 refs. TG 230-T122.
Order from OTS $0.50 60-21064

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 126, no. 4, p. 774-776.

Giterman, M. Sh. and Moskalenko, S. A.
ON THE STRUCTURE OF THE ENERGY BANDS IN IONIC CRYSTALS. [1959] 8p. 14 refs.
Order from MDF $4.00 MDF G-172

Trans. of *Fiz[ika] Met[allov] i Metall[ovedeniye] (USSR) 1959, v. 8, no. 2, p. 170-175.

An investigation has been made of the structure of the electron band and the three hole bands in crystals of the alkali-halide type, taking into account degeneracy of the electronic states at halide sites and the possibility of charge carrier motion in the lattices of both types of ions. An approximate diagonalization of the Hamiltonian of the many electron problem is carried out and group-theoretical methods are applied to investigate the band structure in certain directions in K-space. (Author)

Izyumov, Yu. A.
ON MAGNETIC ANISOTROPY ON THE BASIS OF SPIN-ORBITAL INTERACTION. [1959] 3p. 2 refs.
Order from MDF $2.00 MDF I-120

Trans. of *Fiz[ika] Met[allov i] Metall[ovedeniye] (USSR) 1959, v. 8, no. 2, p. 316-318.

The exchange interaction between electrons is considered according to microscopic theory but the effect of the orbit on the electronic spin is replaced by a certain effective orbital magnetic field which changes from site to site in the crystal.

Kessler, M. F. and Vecerikova, V.
CONTRIBUTION TO THE METHOD OF X-RAY ANALYSIS OF METALLURGICAL COKE. [1959] 14p. (4 figs. omitted) 7 refs.
Order from SLA mi$2.40, ph$3.30 60-10993

Trans. of Brennstoff-Chemie (West Germany) 1959, v. 40, no. 2, p. 52-55.

The reasons for the difficulties in the interpretation of X-ray diffraction patterns of cokes and for the relatively high error in reproducibility (±0.015 Å) of the interlattice plane distance ("d-spacing") $d_{(002)}$ are explained. A new method for X-ray analysis is proposed, based on the use of radiations of longer wave length (Cr-anode) and tungsten powder as reference material. The advantages of the new procedure are discussed. The error in the determination is significantly lower (±0.005 Å) so that one can follow changes in the interlattice plane distances and crystallite sizes with sufficient accuracy. (Author) (Delivered before the National Congress on Utilization of Fuels in Karlsbad, May 1958.)

Lu, Yu-lung and Wang, Ping-nan.
SOME OPINIONS CONCERNING RESEARCH ON SEMICONDUCTOR MATERIALS. 8 Dec 59, 11p.
JPRS: L-1119-N.
Order from OTS $0.50 60-11101

Trans. of K'o Hsüeh T'ung Pao (Chinese People's Republic) 1959, no. 16, p. 508-510.

Men'kov, A. A., Komissarova, L. N., and others.
ON SCANDIUM TELLURIDES AND SELENIDES. [1959] 3p. 11 refs.
Order from MDF $2.00 MDF M-127

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1959, v. 128, no. 1, p. 92-94.

Scandium selenides and tellurides were synthesized from the elements. Metallic scandium was obtained by a calcium-thermal reduction of anhydrous scandium chloride, which was synthesized by chlorination of spectrally-pure scandium oxide with carbon at 1000°. The scandium oxide contained less than 0.005% impurities. The method of thiocyanogen extraction and precipitation of scandium oxalate was used to obtain the oxide. Selenium of the grade for rectifiers (greater than 99.99% pure) was not refined further. The tellurium of a high degree of purity (above 99.99%) was obtained from technical tellurium containing 5% of impurities of selenium, copper, lead and iron. The segregation of the selenium was accomplished by double reprecipitation of the tellurium dioxide, which reduced the selenium content from 0.5% to less than 0.0002%. Tellurium was separated from the heavy metals by sublimation in a high vacuum (10^{-4} to 10^{-5} mm Hg) at 400° after it had been reduced by a sulfur gas. The scandium selenides and tellurides were unfused crystalline powders: the former was a cinnamon-violet and the latter a black color. The chalcogenides obtained were investigated by powder X-ray diffraction methods. The results of the X-ray analyses are tabulated. All 16 lines of the photograph of scandium selenide are indicated well in a cubic face-centered lattice with a = 5.405 ± 0.005 kX. Of the 27 lines of the photograph of scandium telluride, 20 are satisfactorily indicated in a cubic face-centered lattice with a = 5.805 ± 0.005 kX. The densities of scandium selenide and telluride at 22°, obtained by a pycnometric method using bromoform, were 4.51 and 5.26 g/cu cm, respectively. The number of formula units in the elementary cell of both compounds is $z = 1\frac{1}{3}$. Hence, the crystalline structure of both scandium selenide and telluride is similar to the structural type $\gamma^1 = Al_2O_3$. The structures are defective with respect to the scandium ions. The existence of the No. 6, 8, 11, 23 lines in scandium telluride indicates a partial transition of the $\gamma^1 = Al_2O_3$ structure into a $\gamma = Al_2O_3$ structure with an ordered distribution of the scandium ions.

Natta, Giulio, Peraldo, Mario, and Corradini, Paulo.
MESOMORPHIC MODIFICATION OF ISOTACTIC POLYPROPYLENE. Feb 60, 9p. (2 figs. omitted) 5 refs.
Order from RIS $11.50 RIS rept. 97069

Trans. of Accademia Nazionale dei Lincei. [Classe di] Sci[enze] Fiz[iche] Mat[ematiche] e Nat[urali]. Rendiconti (Italy) 1959, ser. 8, v. 26, no. 1, p. 14-17.
Another translation is available from SLA mi$1.80, ph$1.80 as 59-17937 [1959] 7p.

A solid metastable form (modification II) of isotactic polypropylene can be obtained which differs in some of its physical properties from the crystalline stable modification (modification I) already described (Atti accad. nazl. Lincei Rend. Classe sci. mat. e nat. [8]21: 365, 1956, or translation 59-15931). It can easily be obtained by suddenly chilling in cold water sheets of polymer, a few tenths of a millimeter in thickness, previously heated to a point above their melting point (176°C). Modification II contains stretches of macromolecules of isotactic polypropylene which have a trigonal spiral configuration, associated in parallel bundles. The lateral packing of the polymer chains, which correspond to a mean distance between the chains of about 6.4 Å, is less dense and does not have the regularity of the packing of modification I. Modification II can be converted rapidly and completely into modification I by heating to temperatures near those at which fusion begins (140-150°C). Below 140°C the conversion, although it still takes place rapidly, reaches constantly decreasing limiting values, so much so that below 70°C there is no longer any sensible change in the specimens.

Nudel'man, S. L.
ON THE LATTICE PARAMETERS OF CHRYSOTILE (INDEXING OF POWDER PATTERNS WITH MONOCLINIC SYMMETRY). [1959] 3p. 7 refs.
Order from MDF $2.00 MDF N-108

Trans. of *Kristall[ografiya] (USSR) 1959, v. 4, no. 4, p. 621-623.

If the quadratic form of a crystal of monoclinic symmetry is represented

$$\frac{1}{d^2} = \frac{h^2}{a_1^2} + \frac{k^2}{b^2} + \frac{l^2}{c_1^2} - \frac{2h}{a_1 c_1} \cos\beta, \text{ where}$$

$a_1 = a \sin\beta$, and $c_1 = c \sin\beta$ then it is seen that it differs from the quadratic form for a crystal of rhombic symmetry by the term $-(2hl \cos\beta/a_1 c_1)$. Consequently, the indices h00, 0k0, 00l, hk0, 0kl of a monoclinic system can be found on an instrument, exactly as is done in the case of a rhombic system (in the case of the monoclinic system, as opposed to the rhombic system, the hk0 indices are replace by the h0l on the rhombus and the 00l by the 0k0 on the parallelogram). The h0l indices are defined by the vector $2hi \cos\beta$ (see fig. 1), which is the difference in the ordinates of the appropriate lines of the h0l -rhombus and the points of intersection of the OY axis and the line $\frac{1}{d^2}$ determined experimentally from the h0l data and directed toward the h0l line mentioned. The hkl indices are defined by a similar vector, equal to the difference in the ordinates of the appropriate h0l line and the points of intersection of the line $1/d^2$, determined experimentally from hkl data, and the appropriate 0k0 lines. By processing the data of the Gruner

x-ray diagrams the following values were obtained for the chrysotile lattice parameters: a = 9.068; b = 6.715; c = 8.089 Å; β = 62°. On the basis of the hkℓ indices obtained, chrysotile can be referred to the C_{2h}^2 space group. A diagram is given of the locations of the instrument lines for the case of testing the first and second $1/d^2$ lines of chrysotile at the 100 and 001 indices, respectively.

Polotskiy, I. G., Beniyeva, T. Ya., Khodov, Z. L.
EFFECT OF SUPERSONIC VIBRATIONS ON THE CRYSTALLIZATION PROCESS. 16 June 59, 8p. (6 figs. omitted) 17 refs. JPRS: L-814-N.
Order from OTS $0.50 59-13616

Trans. of Akad[emiya] Nauk URSR, [Kiev]. Institut Chernoy Metallurgii. Trudy, 1953, v. 6, p. 91-100.

Transformer oil was used to transmit the ultrasonic vibrations from the quartz vibrator to the orthochlornitrobenzene (chosen as a test object because of it's spontaneous formation of centers of crystallization). A transparent melt of orthochlornitrobenzene was prepared according to a method described by V. I. Danilov and B. M. Teverovskiy (Zhur. Eksptl. i Teoret. Fiz. 10: 1305, 1940), and was purified by means of glass filters. By exposing in an ultrasonic field a tube with melted orthochlornitrobenzene at 20° and varying with a micrometric screw the distance between the bottom of the tube and the quartz, a picture of periodically alternating rings was sometimes observed. These rings vibrated continuously near some middle positions. Microscopic observations of the indicated rings in polarized light made it possible to establish the formation therein of individual small crystals, which were not retained in the zone of the rings but were partly pushed out by the pressure of emission onto the surface of the melt. The formation of centers of crystallization in the melt is probable in the nodes of a standing wave because they are the places of the greatest variations in the density and of the minimum speed of movement of the vibrating medium. Consequently, the ultrasonic waves create additional fluctuations and increase the spontaneous formation of centers of crystallization. Melts of tin, cadmium, and zinc exposed to ultrasonic vibrations during crystallization had much finer grain structures than melts which were not exposed to the vibrations. The decrease in the size of the monocrystals of cadmium was about 10 times, according to X-ray evaluations.

Seeger, A.
THEORY OF LATTICE IMPERFECTIONS. II. MATHEMATICAL THEORY OF DISLOCATIONS. Dec 59, 85p. 93 refs.
Order from SLA mi$4.80, ph$13.80 60-14111

Trans. of Handbuch der Physik (Germany) 1955, v. 7, pt. 1, p. 513-563.

Smol'kov, N. A. and Yeremkina, V. A.
INFLUENCE OF MAGNESIUM ALUMINATE ON THE PROPERTIES OF A MAGNESIUM FERRITE. [1959] 6p. 20 refs.
Order from MDF $3.00 MDF S-149

Trans. of Moscow U. Vestnik. [Seriya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959 [v. 14] no. 2, p. 93-99.

The compounds $MgO \cdot xAl_2O_3 \cdot (1 - x)Fe_2O_3$ were prepared from the oxides MgO, Al_2O_3, and Fe_2O_3. Values of x were 0, 0.25, 0.50, 0.75, and 1.00. A decrease was noted in the following parameters as the concentration of magnesium aluminate increased: The initial and maximum magnetic permeabilities; the coercive force; the residual and maximum inductions; the angle of rotation of the plane of polarization, ϕ; the irreversible phase shift $\Delta\phi^+ - \Delta\phi^-$; the quality, Q; and the value of the resonance field for forward (-) and back (-) waves. The angle ϕ decreased as the temperature rose.

Sobolev, L. V.
TEMPERATURE DEPENDENCE OF THE SPECTRA OF THE COMPLEX DIELECTRIC PERMEABILITY OF POLYCRYSTALLINE NICKEL-ZINC FERRITES. [1959] 5p. 6 refs.
Order from MDF $2.50 MDF S-148

Trans. of Moscow U. Vestnik. [Seriya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959 [v. 14] no. 2, p. 107-111.

The electrical properties of mixed nickel-zinc ferrites were studied in polycrystalline samples of the following compositions: $NiO \cdot Fe_2O_3$, $NiO_{0.75} \cdot ZnO_{0.25} \cdot Fe_2O_3$, $NiO_{0.5} \cdot ZnO_{0.5} \cdot Fe_2O_3$, $NiO_{0.25} \cdot ZnO_{0.75} \cdot Fe_2O_3$ and in $ZnO \cdot Fe_2O_3$. The samples were prepared by the conventional technology for the production of ceramics and were sintered at 1200°C. They were disc-shaped of about 30 mm diameter and 2 to 5 mm thickness. The electrodes were superimposed by deposition of silver in vacuo. The temperature dependence of the spectra of the dielectric losses $\rho(f)$ and the dielectric permeability $\varepsilon(f)$ were measured by a bridge method in the -196 to +200°C range between the 20 and 10^7 cycle range. The spectra of ρ and ε have noticeable relaxation dispersion in the audio and ultrasonic bands. No limiting constant values of ρ and ε were detected. As the temperature rises the dispersion region narrows considerably and is shifted toward the higher frequencies; the dispersion variation in the quantities ρ and ε is diminished considerably. The maximum of the dispersion losses, characterized by the quantity $\tan\delta$, is also shifted toward higher frequencies as the temperature rises. This maximum is not detected at -78 and -196°C. The quantities ρ and ρ have high temperature coefficients; positive for ε and negative for ρ. The general character of the spectra of $\varepsilon(f)$ and $\rho(f)$ is the same for samples of different composition but the spectra differ in details as a function of the sample composition.

Topchiyev, A. V., Geyderikh, M. A. and others.
THE POSSIBILITY OF OBTAINING POLYMER MATERIALS WITH SEMICONDUCTOR PROPERTIES FROM POLYACRYLONITRILE. [1960] [5]p. 5 refs. T-3127.
Order from LC or SLA mi$1.80, ph$1.80 60-14273

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 128, no. 2, p. 312-315.

Another translation is available from LC or SLA mi$1.80, ph$1.80 as 60-10390, 16 Nov 59 [9]p.

A study was made of the semiconducting properties of products of the thermal conversion of polyacrylonitrile, obtained by polymerization of acrylonitrile with organometallic catalysts (LiC_4H_9), at low temperatures (mol wt 10,000), with Li in liquid NH_3, by redox initiation (mol wt 100,000), and also of a polymer obtained by ionic polymerization with subsequent irradiation with a gamma-ray dose of 1.1×10^{22} ev. Samples in both powder and fiber form were heat treated and studied by electronic paramagnetic resonance (EPR) at room temperature: for some fiber samples the relationship between electrical conductivity and temperature was determined. The semiconductors obtained showed electronic conductivity ($\Delta g < 0$). The concentration of current carriers was 10^{18} to 10^{19}, i.e., degeneration was small. The wave half-width of the EPR spectra, characterizing the relaxation time, was 10 to 20 gauss. No hyperfine structure was found in the EPR spectra; one relatively narrow line was observed, in agreement with Fletcher's results (Phys. Rev. 95: 844, 1954). The calculated width of the forbidden zone of polyacrylonitrile obtained by redox initiation and subjected to thermal conversion was 1.7 ev. This semiconductor can operate at a much higher temperature (there is not yet decomposition of the polymer at 300°) than germanium. The width of the forbidden zone indicates that the semiconducting properties are not connected with the carbonization of the polyacrylonitrile sample during thermal treatment.

Tsinober, L. I. and Chentsova, L. G.
SYNTHETIC QUARTZ WITH AMETHYST COLORING. [1959] 4p. 6 refs.
Order from MDF $2.00 MDF T-141

Trans. of *Kristall[ografiya] (USSR) 1959, v. 4, no. 4, p. 633-635.

Polished platelets of synthetic quartz crystals, grown in K_2CO_3 solutions with a large iron content and cut parellel to the (11$\bar{2}$0) plane, were irradiated with 1.35 to 2.7×10^6 Roentgens. The growth pyramids of the positive <R> rhombohedron were colored amethyst. A smoky-gray color with a violet tint occurred in growth pyramids of the negative <r> rhombohedron, but the brown and the green tinted pyramids of the pinacoids did not change color at all. The absorption curves from pyramids of the positive rhombohedron were very similar to those of natural amethyst. Absorption in the ultraviolet region was relatively high, which is explained by the dissipating effect of the inhomogeneities in synthetic quartz. Curves of the negative rhombohedron are considered to be the superposition of two curves, corresponding to the amethyst and smoky-gray coloring. The iron content in the samples grown in this solution was one or two orders of magnitude larger than that in samples grown in a soda solution. The iron content of the brown and the green samples grown on pinacoids (in the potash solution) was especially high: 0.0080 and 0.025 weight percent, respectively. The 0.0040 and 0.0047 wt-% iron content of the amethyst and mixed (amethyst and smoky gray) samples grown in the potash solution can be a confirmation of the assumption of A. Kats and J. M. Stevels (Philips Research Repts. 11: 115-156, 1956) that the coloring is caused by centers similar to the smoky-gray coloring centers, where the Fe^{3+} ion plays the part of the Al^{3+} ion.

Vekilov, Yu. Kh. and Shaskol'skaya, M. P.
EFFECT OF PLASTIC DEFORMATION ON THE INTERNAL FRICTION AND THE SHEAR MODULUS IN SILVER CHLORIDE. [1959] 3p. 8 refs. T-3113.
Order from LC or SLA mi$1.80, ph$1.80 60-14163

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1959, v. 128, no. 1, p. 71-72.

The temperature dependence of internal friction and the shear modulus was studied by means of a relaxator of the type RKF-MIS. The samples were 20 mm long and had a radius of 0.75 mm. They were prepared in the following manner: The AgCl single crystals were pressed at room temperature on a 50-ton press through a hole 2 mm wide, and the resultant wire was drawn out without intermediary tempering until a diameter of 0.75 mm was attained. Relaxation had probably not taken place between the individual operations. Internal friction was ascertained from the amount of the decrement of extinction: $Q^{-1} = \Delta/\pi = (1/\pi n) \ln(A_1/A_n)$, where n denotes the number of oscillations between the amplitudes A_1 and A_n. The temperature dependence of the shear modulus $G \sim f^2$ was simultaneously recorded (f denotes the frequency of oscillations). At 20°C, $Q^{-1} = 10^{-2}$. The high-temperature branch of internal friction begins at room temperature, and at 75°C, $Q^{-1} = 10^{-1}$. After the measurements the deformed samples were annealed directly for five hours at 240°C and then cooled in an oven. Recrystallization was complete and a fine-grained structure was obtained. At 20°C, Q^{-1} is smaller by two orders than in the case of the deformed samples, and the value of $(5\text{-}8) \times 10^{-4}$ was obtained for different specimens. Internal friction begins to rise at 100°C. It attains a peak at 200°C, which results in a corresponding variation of the modulus. This peak is obviously connected with the relaxation of tensions at the grain boundaries. The modulus in deformed state depends on temperature more strongly than in annealed state. At 20°C, the moduli differ by 13 to 17%, considerably exceeding the error of measurement. The sign of the modulus variation is anomalous because the modulus usually becomes smaller during deformation.

Thermodynamics

Katsnelson, B. D. and Shatil', A. A.
HEAT EXCHANGE IN AIR COOLED CYCLONE COMBUSTION CHAMBERS WITH OVERHEAD GAS TAKE-OFF (Teploobmen v Tsiklonnoy Kamere Goreniya s Vozdushnym Okhlazhdeniyem i Verkhnim Vyvodom Gazov). Aug 58 [7]p. 3 refs. C.T.S. no. 512.
Order from LC or SLA mi$1.80, ph$1.80 60-15584

Trans. of Teploenergetika (USSR) 1957 [v. 4] no. 9, p. 73-75.

Experiments are described which led to the recommendation of the following method for calculating the heat exchange of combustion chambers of steam boilers with fluid clinker removal and air-cooled combustion-chamber walls. The thermal conductivity coefficient ψ of the shielding in relation to the melting temperature, t_c, of the cinder is calculated from $\psi = 0.53 - 0.25(t_c/1000)$. The blackbody radiation factor ϵ_m of the chamber is found from $\epsilon_m =$

$\epsilon_{fl}/[\epsilon_{fl} + (1 - \epsilon_{fl})\psi]$, where ϵ_{fl} is the effective blackbody radiation factor of the flame, determined by the norms for the thermal assessment of boiler aggregates. The temperature coefficient, β, is obtained from $\beta = 0.2 + 0.7(\alpha - 1)$, where α represents the excess air coefficient. The relative thermal emissivity, Δ, is obtained from $\Delta = \psi\epsilon_m\beta$, and the specific thermal absorptivity, q, in Kcal/sq m/ hr, of the dowelled furnace walls is given by $q = \Delta 4.9(T_t/100)^4$, where the theoretical temperature, T_t, is determined by the method recommended by the norms for fuel assessment.

Kimura, M.
EFFECTIVE THERMAL CONDUCTIVITY OF WETTED PACKED BEDS. [1959] 5p.
Order from ATS $7.95 ATS-61M37J

Trans. of Kagaku Kogaku (Japan) 1959, v. 23, no. 8, p. 502-505.

Labuntsov, D. A.
HEAT TRANSFER ON FILM CONDENSATION OF PURE VAPOURS ON VERTICAL SURFACES AND HORIZONTAL PIPES (Teplootdacha pri Plenechnoy Kondensatsii Chistykh Parov na Vertikal'nykh Poverkhnostyakh i Gorizontal'nykh Trubakh). June 58 [14]p. 35 refs. C. T. S. no. 454.
Order from LC or SLA mi$2. 40, ph$3. 30 60-15566

Trans. of Teploenergetika (USSR) 1957, v. 4, no. 7, p. 72-79.

Relationships of improved accuracy are presented for calculating heat transfer on the condensation of vapor films in the zone of laminar and turbulent flow of the condensate. These were obtained from the analysis and development of existing theories concerning the mechanism of the process, and were confirmed by generalizing a large quantity of experimental data. (Author)

Shäfer, Kl.
THERMODYNAMICS AND STATISTICS OF BOUNDARY SURFACES (Thermodynamik und Statistik der Grenzflachen). July 59 [33]p. 20 refs. NRL Trans. no. 750.
Order from OTS $1. 00 59-21125

Trans. of Zeitschrift für Elektrochemie (West Germany) 1955, v. 59, no. 4, p. 233-245.

A molecule has a stronger bond inside a liquid than within a surface. As a result of this, the enthalpy or the free enthalpy differs on the inside and at the surface. The phenomena resulting from this, i. e., surface and interfacial tension, capillary pressure and equilibrium state of a boundary surface are explained and derived. The relationship between surface tension and temperature is derived thermodynamically-statistically; one obtains the Eötvös rule. The Gibbs and the Lippmann-Helmholtz equation describe the influence of dissolved substances and of surface charges on the surface tension. Likewise, the change in surface tension due to dissolved electrolytes is calculated and compared with personal measurements. Phenomena in capillary active solutions are only briefly described. (Author) (Presented during the discussion meeting of the German Bunsen Society in Ludwigshafen a. Rh. on 28 October 1954.)

Styrikovich, M. A. and Semenovker, I. Ye.
SOME RELATIONSHIPS IN HEAT TRANSFER TO BOILING MERCURY IN FORCED CONVECTION. [1960] 21p. 3 refs.
Order from LC or SLA mi$2. 70, ph$4. 80 AEC-tr-3868

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1940, v. 10, no. 16, p. 1331-1339.

Wave Propagation

Belousov, S. P. and Yampol'skiy, V. G.
ON THE DETERMINATION OF THE PROPAGATION CONSTANT OF MODES IN A LONG CONDUCTOR, tr. by Morris D. Friedman. Dec 59 [7]p. 7 refs. AFCRC-TN-60-119; B-147.
Order from LC or SLA mi$1. 80, ph$1. 80 60-15454

Trans. of *Radiotekhn[ika] (USSR) 1959, v. 14, no. 7, p. 3-7.
Also available from MDF $2. 50 as MDF B-147 [1959] 5p.

An approximate method is explained of computing the phase velocity and the damping of modes being propagated along a long conductor elevated above the earth. (Author)

Belousov, S. P. and Yampol'skiy, V. G.
ON THE DETERMINATION OF THE PROPAGATION CONSTANT OF MODES IN A LONG CONDUCTOR. [1959] 5p. 7 refs.
Order from MDF $2. 50 MDF B-147

Trans. of *Radiotekh[nika] (USSR) 1959, v. 14, no. 7, p. 3-7.

An approximate method is explained of computing the phase velocity and the damping of modes being propagated along a long conductor elevated above the earth. (Author)

Fok, V. A.
THE THEORY OF THE PROPAGATION OF RADIO WAVES IN A HETEROGENEOUS ATMOSPHERE FOR A SLIGHTLY-RAISED SOURCE. [1959] [24]p. 4 refs. M254.
Order from LC or SLA mi$2.70, ph$4.80 59-19135

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1950, v. 14, no. 1, p. 70-94.

Greenberg, G. A. and Fok, V. A.
THE THEORY OF COASTAL REFRACTION OF ELECTROMAGNETIC WAVES. [1959] [23]p. 12 refs. AF-4.
Order from LC or SLA mi$2.70, ph$4.80 59-16702

Trans. of unidentified [Russian] mono.

The equation $(\partial E_z/\partial z)_{z=0} = 2\pi\alpha(E_z)_{z=0}$ is derived to express the approximate boundary condition over the entire surface of the land for the electric field component (E_z) which is normal to the boundary surface ($z = 0$) between the sea and the land. Here $\alpha = i\mu_2\chi\omega(\varepsilon_1\omega + i4\pi\sigma_1)/2\pi k_2 c^2 = i\mu_2 k_1^2/2\pi\mu_1 k_2$. The assumptions are made that the sea is an ideal conductor, the surface of the land is plane and horizontal, and the portion of land that projects from the water is insignificant in comparison to a wavelength. The integral equation

$$(E_z)_0 = 2(E_z^0)_0 + \alpha \int_{(f)} (E_z)_0 \frac{e^{ikr}}{r} df$$

is obtained, which is based upon the approximate exponential nature of the field attenuation when the depth of penetration into a sufficiently good conductor increases. For the case of an unlimited straight coast line with the external field created by an arbitrary system of radiators the problem reduces to the solution of

$$F(x) = 2F^0(x) + i\pi\alpha \int_0^\infty F(\xi)H_0^{(1)}(m\,|x - \xi|)d\xi,$$

where $H_0^{(1)}$ is a zero order Hankel function of the first kind and $m = \sqrt{k^2 - s^2}$. This is shown to be a particular case of an equation investigated by V. A. Fok (Doklady Akad. Nauk SSSR 36: 147, 1942; and Mat. Sbornik 14(56): 3, 1944). (See also 59-16703)

Smorgonskiy, V. Ya.
COMPUTATION OF THE INPUT RESISTANCE OF A DIPOLE DISPOSED ALONG AN ELLIPTICAL WAVEGUIDE. [1959] 6p. 3 refs.
Order from MDF $3.00 MDF S-144

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Radiotekhnika (USSR) 1959, v. 2, no. 4, p. 480-485.

Formulas and graphs are presented that permit the input resistance of a dipole disposed along an elliptical waveguide to be computed easily and also permit the calculation of the change in the input resistance as a circular waveguide is deformed into an elliptical guide, which is of substantial importance in the determination of tolerances in the eccentricity.

Synakh, V. S.
RADIATION OF GRAVITATIONAL WAVES BY ELECTROMAGNETIC FIELDS, tr. by Morris D. Friedman. Jan 60 [5]p. 1 ref. AFCRC-TN-60-131; S-143.
Order from LC or SLA mi$1.80, ph$1.80 60-15457

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Fizika (USSR) 1959, no. 4, p. 119-122.

The radiation of gravitational waves by a spherical electromagnetic wave is analyzed. It is shown that this must lead to the attenuation of the electromagnetic wave with distance.

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

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26 Feb 60, PB 131 891T-41
18 Mar 60, PB 131 891T-42

Consists of unevaluated information extracted from publications of USSR, Eastern Europe, and China.

SOVIET SCIENTIFIC AND ENGINEERING PERSONNEL. 2 Dec 59, 55p. JPRS: L-1106-N.
Order from OTS $1.50 60-11081

Consists of complete translation of selected biographic-type articles from Russian periodicals.

Braynes, S. N. and Napalkov, A. V.
CERTAIN PROBLEMS IN THE THEORY OF SELF-ORGANIZING SYSTEMS. 25 Jan 60, 13p. JPRS: 2177-N.
Order from OTS $0.50 60-11226

Trans. of Voprosy Filosofii (USSR) 1959, no. 6, p. 148-154.

A successful solution of the problem of self-organizing systems is intimately connected with our approach to certain basic problems in materialistic philosophy. On the basis of the materialistic theory, which acknowledges the objective existence of complex systems of laws in the external world, it is possible correctly and clearly to visualize all the processes which are accomplished in the course of the elaboration of a new work program of self-organizing cybernetic systems. .... In our view, the task of investigation consists in the creation of models of two systems which differ in

their natures, one of which (the model of the controlled system) must possess a system of fixed laws, and the other of which (the control system) must possess an algorithm ensuring the demonstration of these laws and the evolution on this basis of new work programs. (Extracted from the translation)

Chernenko, A. K. and Moronov, K. Ye.
IN THE JOINT SCIENTIFIC COUNCILS OF THE SIBERIAN DEPARTMENT OF THE ACADEMY OF SCIENCES USSR. 26 Feb 60, 3p. JPRS: 2296.
Order from OTS $0.50 60-11332

Trans. of Akademiya Nauk SSSR. Sibirskoye Otdeleniye. Izvestiya, 1959, no. 7, p. 126-127.

Lungonelli, Menotti.
METHOD AND APPARATUS APPLICABLE TO ANY OPTICAL MICROSCOPE FOR OBTAINING PHOTOMICROGRAPHS ON A PLATE OF ANY SIZE, AND FOR PROJECTING OR TAKING CINEMATOGRAPHICALLY MICROSCOPIC SPECIMENS, tr. by F. H. B. 12 Feb 60, 5p. (9 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15552

Trans. of Italian patent 534, 249, cl. XXIII, appl. 6 May 55, granted 13 Oct 55, printed Sep 58.

The device consists of a Köhler illuminating apparatus and of an accessory to be applied on the photographic eyepiece of the microscope and containing a small optically processed plate with a specular surface, which can assume two positions: one of 45° for photomicrography and microprojection, and one of 180° (folded position) for normal use of the microscope with the eye on the eyepiece.

Timofeyev-Resovskiy, N. V. and Rompe, R. R.
ON STATISTICITY AND THE PRINCIPLE OF AMPLIFIER IN BIOLOGY. 16 Feb 60, 25p. 52 refs. JPRS: 2241.
Order from OTS $0.75 60-11289

Trans. of *Problemy Kibernetiki (USSR) 1959, no. 2, p. 213-228.

Read on 16 November 1956 at the Seminar on Cybernetics under the Mechanics and Mathematics Faculty of the Moscow State University.

Votruba, Ladislav.
PLANS FOR SCIENTIFIC-RESEARCH WORK AND THEIR IMPLEMENTATION IN HIGHER SCHOOLS (Plany Vedeckovyzkumne Prace na Vysokych Skolach a Jejich Plneni). 19 Jan 59, 5p. JPRS: L-1401-D.
Order from OTS $0.50 59-11425

Trans. of Vysoka Skola (Czechoslovakia) 1958, v. 6, no. 5, p. 138-141.

Yablonskiy, S. V.
BASIC CONCEPTS OF CYBERNETICS. 11 Mar 60, 42p. 5 refs. JPRS: 2314.
Order from OTS $1.25 60-11347

Trans. of *Problemy Kibernetiki (USSR) 1959, no. 2, p. 7-38.

Communication Theory

Petrovskiy, A. M.
METHOD OF COMPUTING THE INTERFERENCE-PREVENTION OF A PULSE COMMUNICATION SYSTEM TO FLUCTUATING INTERFERENCE ON THE BASIS OF ANALYZING THE SPECTRAL DENSITIES OF THE DISTORTED SIGNAL. [1959] 14p. 7 refs.
Order from MDF $7.00 MDF P-143

Trans. of Avto[matika] i Tele[mekhanika] (USSR) 1954, v. 14, no. 2, p. 124-134.

The method is based on a statistical analysis of signal distortion. The following kinds of pulse modulation are considered: Pulse-amplitude modulation, pulse-time modulation, pulse-code modulation (PCM), modulation by duration, and delta modulation (DM). The interference prevention of DM is compared with that of PCM.

Pushnoy, B. M.
GEOMETRIC CONSTRUCTION OF OPTIMUM CODES. [1959] 13p. 5 refs.
Order from MDF $6.50 MDF P-142

Trans. of *Elektrosvyaz' (USSR) 1959, v. 13, no. 10, p. 3-12.

The possibilities are considered of constructing codes with increased interference-immunity. It is shown that the points of optimum code signals coincide with the vertices of certain regular multidimensional polyhedra. Also, a number of multidimensional irregular polyhedra whose vertices can be points of optimum code signals is investigated. (Author)

SOCIAL SCIENCES

Arnet, Hans and Baechthold, Heini.
THE USE OF NIGHT VISION DEVICES IN THE POLICE SERVICE. 27 Mar 59, 11p. (11 illus. omitted). JPRS: L-727-N.
Order from OTS $0.50 59-13524

Trans. of Kriminalistik (West Germany) 1956 [v. 10] Dec, p. 434-440.

BOOK REVIEWS

The following book reviews can be ordered by number from LC or SLA. Each review includes, in addition to the material shown, a detailed statement of the coverage of the book and a detailed table of contents. The length of each review is indicated at the end of the entry.

BR-SOV/2871
Alekseyeva, S. M., A. I. Rivkin, and M. S. Khitruk
MODERNIZATSIYA BESTSENTROVYKH KRUGLOSHLIFOVAL'NYKH STANKOV (Modernization of Cylindrical Centerless Grinding Machines) Moscow, Mashgiz, 1957. 71 p. 6,700 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2990
KRATKIY SVETOTEKHNICHESKIY SPRAVOCHNIK (Short Handbook on Lighting Engineering) Moscow, Gosenergoizdat, 1959. 79 p. 3,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2992
RSFSR. Moskovskiy gorodskoy ekonomicheskiy rayon. Sovet narodnogo khozyaystva
OKRASKA V ELEKTRICHESKOM POLE VYSOKOGO NAPRYAZHENIYA (Painting In A High Voltage Electric Field) Moscow, Tsentr. byuro tekhn. inform., 1958. 63 p. (Series: Dostizheniya nauki i tekhniki) Errata slip inserted. 4,500 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2993
Hajdovsky, Vladimir
ISSLEDOVANIYE MATERIALOV RENTGENOVYMI I -LUCHAMI (Using X-rays and Gamma-Rays in Material Testing) Moscow, Metallurgizdat, 1959. 314 p. Errata slip inserted. 5,000 copies printed. Translation of "Zkouseni materialu a vyrobku rentgenovymi paprsky a paprsky gama." Prague, 1956. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2995
Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk. Komissiya po khromatografii
IONNYY OBMEN I YEGO PRIMENENIYE (Ion Exchange and Its Application) Moscow, Izd-vo AN SSSR, 1959. 318 p. Errata slip inserted. 4,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2994
Kivilis, Solomon Shlemovich
TEKHNIKA IZMERENIYA PLOTNOSTI ZHIDKOSTEY I TVERDYKH TEL (Techniques of Measuring Densities of Liquids and Solids) Moscow, Standartgiz, 1959. 191 p. Errata slip inserted. 3,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2996
Akademiya nauk SSSR. Institut goryuchikh iskopayemykh
GENEZIS TVERDYKH GORYUCHIKH ISKOPAYEMYKH (Genesis of Solid Fuels) Moscow, AN SSSR, 1959. 358 p. Errata slip inserted. 2,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2997
Uvarov, Georgiy Vasil'yevich
RAZVITIYE KHIMICHESKOY PROMYSHLENNOSTI V 1959-1965 GODAKH (Development of the Chemical Industry Between 1959 and 1965) Moscow, Izd-vo "Znaniye," 1959. 15 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IV, 1959, no. 26) 47,500 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2998
Vasil'yev, Mikhail Vasil'yevich
PUTESHESTVIYA V KOSMOS (Space Travel) 2d ed., rev. and enl. [Moscow] Izd-vo "Sovetskaya Rossiya," 1958. 245 p. 30,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-POL/2999
Thor, Janusz
PODROZE POZA ZIEMIE; OPOWIESCI Z DAWNYCH CZASOW, OSIAGNIECIA DNIA DZISIEJSZEGO, PLANY NA PRZYSLOSC (Space Travel; Stories from the Past, Achievements of Today, and Plans for the Future) Warsaw, Panstwowe wydawnictwa techniczne, 1959. 151 p. 5,253 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-YUG/3002
Vidmar, Milan.
PROBLEMI RAZPETINE V ELEKTRICNEM DALJNOVODU (Span Problems in Overhead Transmission Lines) Ljubljana, Slovenska akademija znanosti in umetnosti v Ljubljani, 1959. 68 p. (Series: Slovenska akademija znanosti in umetnosti. Razred za matematicne, fizikalne in teknicne vede. Dela [No.] 4) (Series: Slovenska akademija znanosti in umetnosti. Institut za elektrisko gospodarstvo. [Dela, No.] 2) 1,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

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ELEKTROOBORUDOVANIYE VTORICHNOY KOMMUTATSII I YEYE MONTAZH (Control System Equipment and Its Installation) 2nd ed., rev. Moscow, Gosenergoizdat, 1958. 255 p. 25,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

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Gorfman, A. I. and A. R. Dembo
AVTOMATIKA V STROITEL'STVE (Automation in

Construction Works) Leningrad, Gosstroyizdat, 1959. 183 p. 9,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3006
Malinin, Roman Mikhaylovich
KONDENSATORY I SOPROTIVLENIYA (Capacitors and Resistors) Moscow, Voyen. izd-vo M-va obor. SSSR, 1959. 174 p. No. of copies printed not given. 5 p. Microfilm $1.80 Photocopy $1.80.

BR-SOV/3007
Strashkevich, Aleksey Mikhaylovich
ELEKTRONNAYA OPTIKA ELEKTROSTATICHESKIKH POLEY NE OBLADAYUSHCHIKH OSEVOY SIMMETRIYEY (Electron Optics of Electrostatic Fields Without Axial Symmetry) Moscow, Fizmatgiz, 1959. 251 p. 6,000 copies printed. Ed.: V. Ya. Dubnova; Tech. Ed.: S. S. Gavrilov. 4 p. Microfilm $1.80 ph. $1.80

BR-SOV/3008
Aseyev, Boris Pavlovich
FAZOVYYE SOOTNOSHENIYA V RADIOTEKHNIKE (Phase Relationships in Radio Engineering) 3rd ed., enl. Moscow, Svyaz'izdat, 1959. 304 p. 11,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3011
Vsesoyuznoye astronomo-geodezicheskoye obshchestvo
BYULLETEN', NO. 25/32/ (Bulletin of the All-Union Astronomical and Geodetic Society, Nr 25/32/) Moscow, Izd-vo AN SSSR, 1959. 50 p. 1,500 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3012
Akademiya nauk SSSR. Morskoy gidrofizicheskiy institut
FIZIKA MORYA (Physics of the Sea) Moscow, Izd-vo AN SSSR, 1959. 95 p. (Series: Its: Trudy, Vol 17) Errata slip inserted. 1,300 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3014
Butalov, Vladimir Aleksandrovich
TEKHNOLOGIYA METALLOV (Production and Processing of Metals) 2nd ed., rev. and enl. Moscow, Metallurgizdat, 1959. 502 p. Errata slip inserted. 31,500 copies printed. 18 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3016
Akademiya nauk SSSR. Laboratoriya sistem peredachi informatsii
PROBLEMY PEREDACHI INFORMATSII. VYP. 1: POSTROYENIYE SKHEM I SETEY SVYAZI. (Problems of Information Transmission. Nr. 1: Design of Communications Circuits and Networks) Moscow, Izd-vo AN SSSR, 1959. 163 p. Errata slip inserted. 2,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3017
Momot, Yevgeniy Grigor'yevich
GENERATOR S SHUNTIRUYUSHCHIM DIODOM I YEGO PRIMENENIYE (Oscillator With a By-Pass Diode and Its Application) Moscow, Gosenergoizdat, 1959. 155 p. 15,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

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Sirotinskiy, Leonid Ivanovich
TEKHNIKA VYSOKIKH NAPRYAZHENIY. CH. 3, VYP. 1: VOLNOVYYE PROTSESSY I VNUTRENNIYE PERENAPRYAZHENIYA V ELEKTRICHESKIKH SISTEMAKH (High-Voltage Engineering. Pt. 3, no. 1: Wave Processes and Internal Overvoltages in Electrical Systems) Moscow, Gosenergoizdat, 1959. 365 p. 15,000 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3019
Mashinoeksport, Vsesoyuznoye ob'yedineniye
KATALOG SPRAVOCHNIK, TOM. 1: ELEKTRICHESKIYE MASHINY (Catalog and Reference Manual, Vol. 1: Electrical Machines) Moscow, [n. d.] 304 p. Number of copies printed not given. 8 p. Microfilm $1.80 Photocopy $1.80

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Tyutin, Ivan Andreyevich
ELEKTROMAGNITNYYE NASOSY DLYA ZHIDKIKH METALLOV (Electromagnetic Pumps for Liquid Metals) Riga, Izd-vo AN Latviyskoy SSR, 1959. 113 p. Errata slip inserted. 1,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

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Sergeyev, Sergey Ivanovich
DEMPFIROVANIYE MEKHANICHESKIKH KOLEBANIY (Damping of Mechanical Vibrations) Moscow, Fizmatgiz, 1959. 408 p. Errata slip inserted. 5,000 copies printed. 5p. Microfilm $1.80 Photocopy $1.80

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Ippelitov, Georgiy Mikhaylovich
ABRAZIVNYYE INSTRUMENTY I IKH EKSPLUATATSIYA (Abrasive Tools and Their Use) Moscow, Mashgiz, 1959. 254 p. 7,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

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Povolotskiy, David Yakovlevich, and Aleksandr Nikolayevich Morozov
VODOROD I FLOKENY V STALI (Hydrogen and Flakes in Steel) Moscow, Metallurgizdat, 1959. 182 p. Errata slip inserted. 2,800 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3025
USSR. Komitet standartov, mer i izmeritel'nykh priborov
PRIBORY TEPLOENERGETICHESKOGO KONTROLYA (Instruments Used in Heat-power Control) Official ed. Moscow, 1959. 478 p. (Series: USSR. Gosudarstvennyye standarty) Errata slip inserted. 5,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

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Grinilev, Lev Solomonovich
O KIBERNETIKE (On Cybernetics) Moscow, Izd-vo "Znaniye," 1959. 30 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politcheskikh i nauchnykh znaniy. Seriya IV, 1959, No. 28) 55,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

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Leningrad. Tsentral'naya aerologicheskaya observatoriya
NEKOTORYYE VOPROSY FIZIKI OBLAKOV (Some Problems in Cloud Physics) Moscow, Gidrometeoizdat (otd.) 1959. 94 p. (Series: Its: Trudy, vyp. 30) 650 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

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Polonskiy, Vladimir Ivanovich
ATOMNYYE KORABLI (Atomic-Powered Ships) Leningrad, 1959. 41 p. 9,500 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

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Kizel'shteyn, V. Ya.
PRIMENENIYE KHIMII V OBRABOTKE METALLOV (Application of Chemistry in Metal Finishing) [Leningrad] Lenizdat, 1959. 174 p. 3,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

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Kovalenko, Anatoliy Dmitriyevich
KRUGLYYE PLASTINY PEREMENNOY TOLSHCHINY (Circular Plates of Variable Thickness) Moscow, Fizmatgiz, 1959. 294 p. Errata slip inserted. 4,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

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Adamov, Pavel Nikolayevich
SLUZHBA POGODY (Weather Service) 2d ed. Leningrad, Gidrometeoizdat, 1959. 43 p. 10,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3039
Chernyak, Konstantin Isaakovich
EPOKSIDNYYE KOMPAUNDY I IKH PRIMENENIYE (Epoxy Compounds and Their Application) Leningrad, Sudpromgiz, 1959. 132 p. Errata slip inserted. 3,800 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

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Blokhin, Mikhail Arnol'dovich
METODY RENTGENO-SPEKTRAL'NYKH ISSLEDOVANIY (Methods of X-ray Spectrum Analysis) Moscow, Fizmatgiz, 1959. 386 p. 5,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

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Kantorovich, Leonid Vital'yevich, and Gleb Pavlovich Akilov
FUNKTSIONAL'NYY ANALIZ V NORMIROVANNYKH PROSTRANSTVAKH (Functional Analysis in Normed Spaces) Moscow, Fizmatgiz, 1959. 684 p. 6,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3050
Gol'danskiy, Vitaliy Iosifovich, Andrey Varfolomeyevich Kutsenko and Mikhail Isaakovich Podgoretskiy.
STATISTIKA OTSCHETOV PRI REGISTRATSII YADERNYKH CHASTITS (Statistics of Readings in Recording of Nuclear Particles) Moscow, Fizmatgiz, 1959. 411 p. 6,000 copies printed. 11 p. Microfilm $ 2.40 Photocopy $3.30

BR-SOV/3051
Bonch-Osmolovskaya, Natal'ya Aleksandrovna
ATOMNYY FOTOEFFEKT V OBLASTI -LUCHEY (Atomic Photoelectric Effect in the Gamma-ray Range) Moscow, AN SSSR, 1959. 48 p. Errata slip inserted. 950 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3052
Akademiya nauk Armyanskoy SSR. Institut tonkoy organicheskey khimii.
SINTEZY GETEROTSIKLICHESKIKH SOYEDINENIY, VYP. 3 (Synthesis of Heterocyclic Compounds, Nr. 3) Yerevan, Izd-vo AN Armyanskoy SSR, 1958. 89 p. 2,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3054
Deryagin, Boris Vladimirovich, and Sergey Maksimovich Levi
FIZIKO-KHIMIYA NANESENIYA TONKIKH SLOYEV NA DVIZHUSHCHUYUSYA PODLOZHKU (Physics and Chemistry of the Application of Thin Coatings to Moving Film Bases) Moscow, Izd-vo AN SSSR, 1959. 207 p. Errata slip inserted. 4,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3055
Kashpur, Yakov Nikolayevich and Anatoliy Fedorovich Zakhar'in
GEOTERMICHESKIYE USLOVIYA YUGO-ZAPADNOY CHASTI DONBASSA (Geothermal Conditions of the Southwestern Part of the Donets Basin) Moscow, Ugletekhizdat, 1958. 114 p. 1,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3056
Al'tshuler, Anatoliy Yevgen'yevich, Petr Ivanovich Korotkov, Vasiliy Leonidovich Kazanskiy, and Nikolay Mikhaylovich Gerasimenko
PROIZVODSTVO SMAZOCHNYKH MASEL IZ SERNISTYKH NEFTEY (Producing Lubricating Oils From Sulfurous Crudes) Moscow, Gostoptekhizdat, 1959. 189 p. Errata slip inserted. 4,200 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3057
Sevcov, Ivan
OCHRANA PROTI BLESKOM (Protection Against Lightning) Bratislava, Slovenske Vydatelstvo Technickej Literatury, 1959. 181 p. 1,700 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3058
Sobolevskiy, Anatoliy Georgiyevich
IMPUL'SNAYA TEKHNIKA (Pulse Techniques) Moscow, Gosenergoizdat, 1958. 167 p. (Series: Massovaya radiobiblioteka, vyp. 308) 65,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3059
But, A. I.
DISKOVYY ELEKTRICHESKIY RAZDELITEL'; PYLEULAVLIVANIYE, FRAKTSIONIROVANIYE, SEPARATSIYA I TERMOOBRABOTKA RAZLICHNYKH MATERIALOV V ELEKTRICHESKOM POLE. (Electric Disk Separator; Dust Collecting, Fractionation, Separation and Heat Treatment of Various Materials in an Electric Field) Moscow, Gosstroyizdat, 1959, 86 p. 3,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3060
Roginskiy, Vadim Nikolayevich
ELEMENTY STRUKTURNOGO SINTEZA RELEYNYKH SKHEM UPRAVLENIYA (Elements of Structural Synthesis of Relay Control Circuits) Moscow, AN SSSR, 1959. 167 p. Errata slip inserted. 4,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3067
Moscow, Tsentral'nyy institut prognozov
VOPROSY GIDROLOGICHESKIKH PROGNOZOV (Problems in Hydrological Forecasting) Moscow, Gidrometeoizdat (otd.) 1959. 73 p. (Series: Its: Trudy, vyp. 90) 860 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-CZECH/3069
Ruzicka, Jaroslav, and Zdenek Sigut
JADERNA ENERGIE V TECHNICE (Industrial Use of Nuclear Power) [Prague] Statni nakladatelstvi technicke lit-ry, 1959. 95 p. 4,200 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3071
Akademiya nauk SSSR. Energeticheskiy institut
ELEKTROENERGETIKA, VYP. 1 (Electric Power Engineering, Nr. 1) Moscow, Izd-vo AN SSSR, 1959. 159 p. Errata slip inserted. 2,800 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3072
Bondar', Mikhail Pavlovich, Aleksandr Yakovlevich Lopata, and Mikhail L'vovich Orlikov
TOKARNYYE AVTOMATY I POLUAVTOMATY (Automatic and Semiautomatic Lathes) Kiyev, Mashgiz, 1959. 450 p. 30,000 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3073
Lyubimov, Valentin Mikhaylovich, Viktor Ivanovich Ostrogorskiy, and Mikhail Semenovich Shlionskiy
SKREBKOVYYE RAZGRUZOCHNYYE MASHINY (Scraper-type Unloading Machines) Moscow, Metallurgizdat, 1959. 44 p. 2,700 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3074
Izmaylov, Nikolay Arkad'yevich,
ELEKTROKHIMIYA RASTVOROV (Electrochemistry of Solutions) Kharkov, Izd-vo Khar'kovskogo univ., 1959. 957 p. Errata slip inserted. 10,000 copies printed. 13 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3076
Bakhvalov, Grigoriy Tikhonovich, and Anna Vasil'yevna Turkovskaya
KORROZIYA I ZASHCHITA METALLOV (Corrosion and Protection of Metals) 2d ed., rev. and enl. Moscow, Metallurgizdat, 1959. 310 p. Errata slip inserted. 11,200 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3080
Gomelauri, Nikolay Georgiyevich, Nikolay Vasil'yevich Kashakashvili, Solomon Avtandilovich Sharadzenidze, Viktor Viktorovich Sereda, and Georgiy Lukich Gogava
ZAKAVKAZSKIY METALLURGICHESKIY ZADOV IMENI I. V. STALINA (Zakavkazskiy Metallurgical Plant imeni I. V. Stalin) [Moscow] Metallurgizdat, 1959. 147 p. 3,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3082
Nasledov, Dmitriy Nikolayevich
POLUPROVODNIKI (Semiconductors) Moscow, Izd-vo "Znaniye," 1959. 44 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IV, 1959, no. 30/31) 51,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3083
Maksimovich, Georgiy Grigor'yevich
AVTOMATYCHNYY KONTROL' ROZMIRIV RIZ'BY (Automatic Thread Gaging) Kyyiv, Vyd-vo AN URSR, 1959, 113 p. 1,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3085
Demyantsevich, Vladimir Petrovich, and Semen Isaakovich Dumov
TEKHNOLOGIYA ELEKTRICHESKOY DUGOVOY SVARKI (Technique of Electric-arc Welding) Moscow, Mashgiz, 1959. 360 p. 20,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3086
Galaktionova Nadezhda Andreyevna
VODOROD V METALLAKH (Hydrogen in Metals) Moscow, Metallurgizdat, 1959. 255 p. Errata slip inserted. 3,200 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3088
Rabotin, Aleksandr Nikolayevich
TOCHNOST' OBRABOTKI DETALEY MASHIN (Accuracy in Machining Machine Elements) 3rd ed. Moscow, Mashgiz, 1959. 41 p. (Series: Nauchno-populyarnaya biblioteka rabochego stanochnika, vyp. 21) 8,500 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3090
Moscow. Aviatsionnyy tekhnologicheskiy institut
ISSLEDOVANIYE PROTSESSOV VYSOKOPROIZVODITEL'NOY OBRABOTKI METALLOV REZANIYEM (Analysis of High-productivity Metal-cutting Processes) Moscow, Oborongiz, 1959. 130 p. (Series: Its: Trudy, vyp. 38) 3,600 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3093
Bronshteyn, Vladimir Markovich
SNIZHENIYE BRAKA V STALEPLAVIL'NOM PROIZVODSTVE (Reduction of the Number of Rejects in the Steelmaking Indsutry) Moscow, Metallurgizdat, 1959. 140 p. 3,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3094
Yelistratov, Petr Savel'yevich
SVAROCHNYYE SVOYSTVA CHUGUNA (Welding Properties of Cast Iron) Moscow, Mashgiz, 1959. 145 p. Errata slip inserted. 5,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3095
Gliner, Boris Moiseyevich
OPREDELENIYE MEKHANICHESKIKH I TEKHNOLOGICHESKIKH SVOYSTV METALLOV; KRATKOYE SPRAVOCHNOYE POSOBIYE (Determination of Mechanical and Manufacturing Properties of Metals; a Brief Manual) 2d ed., rev. and enl., Moscow, Mashgiz, 1959. 158 p. Errata slip inserted. 8,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3097
Ris, Vladimir Fedorovich
RASCHET DISKOV TURBOMASHIN (Design of Turbomachine Disks) 2d ed., rev., Moscow, Mashgiz, 1959. 54 p. Errata slip inserted. Supplement of 18 charts. 3,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3098
Kaufman, Lazar' Moyseyevich
BESKOPIRNYYE SISTEMY AVTOMATIZATSII STANKOV (Program-control Systems for the Automation of Machine Tools) Moscow, Mashgiz, 1959. 285 p. Errata slip inserted. 6,000 copies printed. 4 Microfilm $1.80 Photocopy $1.80

BR-SOV/3099
Tbilisi. Nauchno-issledovatel'skiy gidrometeorologicheskiy institut
TRUDY, VYP. 4 (Transactions of the Tbilisi Hydro-Meteorological Scientific Research Institute, No. 4) Leningrad, Gidrometeoizdat, 1959. 178 p. 1,500 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3100
Akademiya nauk SSSR. Ural'skiy filial. Institut metallurgii
TRUDY, VYP. 4 (Transactions of the Institute of Metallurgy, Ural Branch, Academy of Sciences, USSR; No. 4) Sverdlovsk, 1958. 157 p. Errata slip inserted. 1,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3102
Buyanov, Aleksandr Fedorovich
UPRAVLYAYEMYY ELEKTRON (Guided Electron) Moscow, Profizdat, 1959. 138 p. 10,500 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3108
Baldin, Aleksandr Mikhaylovich, Vitaliy Iosifovich Gol'danskiy, and Iosif Leonidovich Rozental'
KINEMATIKA YADERNYKH REAKTSIY (Kinematics of Nuclear Reactions) Moscow, Fizmatgiz, 1959. 296 p. 8,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3110
Moshnin, Yevgeniy Nikolayevich
GIBKA, OBTYAZHKA I PRAVKA NA PRESSAKH; TEKHNOLOGIYA I OBORUDOVANIYE (Bending, Stretching, and Straightening in Presses; Processing and Equipment) Moscow, Mashgiz, 1959. 359 p. Errata slip inserted. 6,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3111
Nadenenko, Sergey Ivanovich
ANTENNY (Antennas) Moscow, Svyaz'izdat, 1959. 550 p. Errata slip inserted. 20,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3112
Andreyevskiy, Mir Nikolayevich
KONSTRUIROVANIYE ELEMENTOV RADIOPEREDATCHIKOV, USTANAVLIVAYEMYKH NA PODVIZHNYKH OB"YEKTAKH (Component Design of Radio Transmitters for Mobile Use) Moscow, Oborongiz, 1959. 261 p. 22,500 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3313
Gantmakher, Feliks Ruvimovich and Lev Mikhaylovich Levin
TEORIYA POLETA NEUPRAVLYAYEMYKH RAKET (Theory of Unguided Rocket Flight) Moscow, Fizmatgiz, 1959. 360 p. 8,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3118
Akademiya nauk SSSR. Komitet po geodezii i geofizike
ODINNADTSATAYA GENERAL'NAYA ASSEMBLEYA MEZHDUNARODNOGO GEODEZICHESKOGO I GEOFIZICHESKOGO SOYUZA (Eleventh General Assembly of the International Geodetic and Geophysical Association) Moscow, 1959. 326 p. Errata slip inserted. 1,800 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3119
Akademiya nauk SSSR. Institut tochnoy mekhaniki i vychislitel'noy tekhniki
SBORNIK STATEY PO MASHINNOMU PEREVODU (Collection of Articles on Machine Translation) Moscow, 1958. 120 p. 300 copies printed. 3 p.

Microfilm $1.80 Photocopy $1.80

BR-SOV/3121
Leningrad. Glavnaya geofizicheskaya observatoriya
VOPROSY SINOPTICHESKOY KLIMATOLOGII I GELIOGEOFIZIKI (Problems of Synoptic Climatology and Heliogeophysics) Leningrad, Gidrometeoizdat, 1959. 81 p. (Series: Its: Trudy, vyp. 89) Errata slip inserted. 1,200 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3125
Likhter, Yakov Iosifovich
IZMERENIYE ATMOSFERNYKH RADIOPOMEKH (Measuring Atomspheric Radio Interferences) Moscow, Svyaz'izdat, 1959. 27 p. (Series: Lektsii po tekhnike svyazi) Errata slip inserted. 10,300 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3137
Wolczek, Olgierd
IZOTOPY NA SLUZHBE CHELOVEKA (Isotopes in the Service of Man) Moscow, Fizmatgiz, 1958. 271 p. Errata slip inserted. 20,000 copies printed. [Translated from the Polish] (Title page): 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3140
Akademiya nauk Ukrainskoy SSR. Institut fiziki
FOTOELEKTRICHESKIYE I OPTICHESKIYE YAVLENIYA V POLUPROVODNIKAKH; TRUDY PERVOGO VSESOYUZNOGO SOVESHCHANIYA PO FOTOELEKTRICHESKIM I OPTICHESKIM YAVLENIYAM V POLUPROVODNIKAKH, G. KIYEV, 20-26 NOYABRYA 1957 G (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed. 16 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3141
Orlov, Vasiliy Ivanovich and Viktor Nikolayevich Trostnikov
SINKHROFAZOTRON NA 10 MILLIARDOV ELEKTRONOVOL'T (A 10 Bev Proton Synchrotron) Moscow, Izd-vo "Znaniye," 1959. 31 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IX, 1959, no. 22) 37,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3143
Krasin, Andrey Kapitonovich
ATOMNYYE ELEKTROSTANTSII; RAZVITIYE YADERNOY ENERGETIKI ZA PYAT' LET. (Atomic Electric Power Stations; Development of Nuclear Power Engineering for the Last Five Years) Moscow, Izd-vo "Znaniye," 1959. 22 p. (Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IX, 1959, no. 25) 37,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3146
Kolotygin, Igor' Nikolayevich
PERENOSNYY MAGNITOFON (Portable Tape Recorder) Moscow, Gosenergoizdat, 1958. 23 p. (Series: Massovaya radiobiblioteka, vyp. 314) 50,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-CHICOM/3147
Wang, Chia-ho
JEN TSAO WEI HSING TI YUN HSING LI LUN (Theory of the Motion of Artificial Satellites) Peking, K'o hsueh ch'u pan she, 1959. 134 p. 6,074 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3149
Konovalov, P. F., A. I. Yefremov, and B. V. Volkonskiy
IONIZATSIONNAYA RENTGENOSTRUKTURNAYA USTANOVKA DLYA ISSLEDOVANIYA KRISTALLICHESKIKH VESHCHESTV PRI RAZLICHNYKH TEMPERATURAKH (Ionization X-ray Apparatus for Study of Crystalline Substances at Various Temperatures) Leningrad, 1958. 133 p. Errata slip inserted. 1,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3150
Vserossiyskaya konferentsiya professorov i prepodavateley pedagogicheskikh institutov
PRIMENENIYE UL'TRAAKUSTIKI K ISSLEDOVANIYU VESHCHESTVA; TRUDY KONFERENTSII, VYP. 7 (Application of Ultrasonics for Analysis of Substances; Transactions of the All-Russian Conference of Professors and Teachers of Pedagogical Institutes, Nr 7) Moscow, Izd. MOPI, 1958. 283 p. 1,500 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3155
Smirnov, Gennadiy Dmitriyevich
ELEKTRONNYYE TSIFROVYYE MASHINY (Electronic Digital Computers) Moscow, Gosenergoizdat, 1958. 87 p. (Series: Massovaya radiobiblioteka, vyp. 315) 42,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3157
Il'inskiy, Nikolay Dmitriyevich
OBOSNOVANIYE ANALITICHESKIKH METODOV STEREOFOTOGRAMMETRICHESKOY OBRABOTKI MATERIALOV AEROFOTOS"YEMKI (Substantiation of Analytical Methods in Stereophotogrammetric Processing of Aerial Photography Materials) Moscow, Geodezizdat, 1959. 178 p. Errata slip inserted. 3,500 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3159
Lyubchik, Mikhail Abramovich
RASCHET I PROYEKTIROVANIYE ELEKTROMAGNITOV POSTOYANNOGO I PEREMENNOGO TOKA (Calculation and Design of DC and AC Electromagnets) Moscow, Gosenergoizdat, 1959. 223 p. Errata slip inserted. 9,000 copies printed. 5 p. Microfilm $1.80

Photocopy $1.80

BR-SOV/3162
Markov, Ivan Pavlovich
LINII PEREDACHI (Transmission Lines) Moscow, Voyenizdat, 1958. 108 p. (Series: Radiolokatsionnaya tekhnika) No of copies printed not given. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3166
Nekhotyayeva, Ol'ga Vasil'yevna
GIDROMETEOROLOGICHESKAYA SLUZHBA V SSSR (Hydrometeorological Service in the USSR) Moscow, Sel'khozgiz, 1958. 22 p. (Series: Vsesoyuznaya sel'skokhozyaystvennaya vystavka) 4,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3169
Manelis, G. B.
PRIRODA KATALITICHESKOY AKTIVNOSTI BF_3 I YEGO KOMPLEKSOV; AVTOREFERAT DISSERTATSII SOISKANIYE UCHENOY STEPENI KANDIDATA KHIMICHESKIKH NAUK (Nature of the Catalytic Activity of BF_3 and its Complex compounds; Author's Abstract of a Dissertation for the Degree of Candidate of Chemical Sciences) Moscow, 1958. 10 p. 100 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3171
Belyayev, Anatoliy Ivanovich, and Lidiya Alekseyevna Firsanova
ODNOVALENTNYY ALYUMINIY V METALLURGICHESKIKH PROTSESSAKH (Monovalent Aluminum in Metallurgical Processes) Moscow, Metallurgizdat, 1959. 142 p. Errata slip inserted. 1,550 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3177
MATEMATIKA V SSSR ZA SOROK LET, 1917-1957 TOM 1: OBZORNYYE STAT'I (Mathematics in the USSR for Forty Years, 1917-1957) Vol 1: Review Articles) Moscow, Fizmatgiz, 1959. 1002 p. 5,500 copies printed. 18 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3182
Shchukin, Viktor Konstantinovich
SHTURM NEBA (Assault on the Sky) 2d ed., rev. Moscow, Fizmatgiz, 1959. 62 p. (Series: Nauchno-populyarnaya biblioteka, vyp. 59) 50,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3183
Varaksin, Yakov Gavrilovich
RADIOELEKTRONIKA V VOYENNOM DELE (Military Use of Radioelectronics) Moscow, Voyenizdat, 1958. 283 p. (Series: Nauchno-populyarnaya biblioteka) No. of copies printed not given. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3184
Isakov, Petr Kuz'mich, Viktor Pavlovich Kaznevskiy, Valeriy Konstantinovich Lutskiy, and Tamara Lyudvigovna Rapoport
ISKUSSTVENNYYE SPUTNIKI ZEMLI; 100 VOPROSOV I OTVETOV (Artificial Earth Satellites; 100 Questions and Answers) Moscow, 1959. 95 p. 75,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3195
Ragozin, Nikandr Andreyevich
REAKTIVNYYE TOPLIVA (Jet Engine Fuels) Moscow, Gostoptekhizdat, 1959. 120 p. Errata slip inserted. 5,200 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3196
Khitun, Vsevolod Andreyevich
SCHETCHIKI YADERNOGO IZLUCHENIYA I SCHETNYYE USTROYSTVA (Counters of Nuclear Radiation and Computers) Moscow, Gosenergoizdat, 1959. 71 p. (Series: Massovaya radiobiblioteka, vyp. 338) 42,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3197
Saldadze, Kirill Maksimovich
IONOOBMENNYYE SMOLY (Ion Exchange Resins) Moscow, AN SSSR, 1959. 53 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 20,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3198
Nalbandyan, Aram Bagratovich, and Nikolay Sergeyevich Yenikolopyan
FORMAL'DEGID- MATERIAL DLYA PLASTMASS (Formaldehyde: Raw Material for Plastics) Moscow, AN SSSR, 1959. 68 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 17,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3201
Akademiya nauk SSSR. Energeticheskiy institut
GAZODINAMIKA I FIZIKA GORENIYA (Gas Dynamics and Physics of Combustion) Moscow, Izd-vo AN SSSR, 1959. 170 p. Errata slip inserted. 3,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3202
Irodov, Igor' Yevgen'yevich
SBORNIK ZADACH PO ATOMNOY FIZIKE (Collection of Problems on Nuclear Physics) Moscow, Atomizdat, 1959. 150 p. (Series: Uchebnaya biblioteka) 14,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3228
Dzhelepov, B. S.
IZOBARNYYE YADRA S MASSOVYM CHISLOM A=74 (Isobaric Nuclei With Mass Number A=74) Moscow, Izd-vo AN SSSR, 1959. 39 p. (Series: Svoystva atomnykh yader, vyp. 1) Errata slip inserted. 4,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3236
Pikel'ner, Solomon Borisovich
FIZIKA MEZHZVEZDNOY SREDY (Physics of the

Interstellar Matter) Moscow, Izd-vo AN SSSR, 1959. 215 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 12,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3237
Zamorskiy, Aleksandr Dmitriyevich
ATMOSFERNYYE YAVLENIYA (Atmospheric Phenomena) Leningrad, Gidrometeoizdat, 1959. 93 p. 5,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3240
Leningrad. Inzhenerno-ekonomicheskiy institut
PRIMENENIYE RENTGENOVYKH LUCHEY K ISSLEDOVANIYU MATERIALOV (Application of X-Rays in the Study of Materials) [Leningrad] Izd-vo Leningradskogo univ., 1959. 125 p. (Series: Its: Trudy, vyp. 28) Errata slip inserted. 2,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3255
Tarasov, G., and I. Mikhaylov
REAKTIVNOYE ORUZHIYE (Missile and Rocket Weapons) Moscow, Izd-vo DOSAAF, 1959. 46 p. 38,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3257
Gutkin, Lev Solomonovich
PRINTSIPY RADIOUPRAVLENIYA BESPILOTNYMI OB"YEKTAMI (Principles of the Radio Control of Pilotless Objects) Moscow, Izd-vo "Sovetskoye Radio," 1959. 383 p. Errata slip inserted. No. of copies printed not given. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3262
Gol'danskiy, Vitaliy Iosifovich
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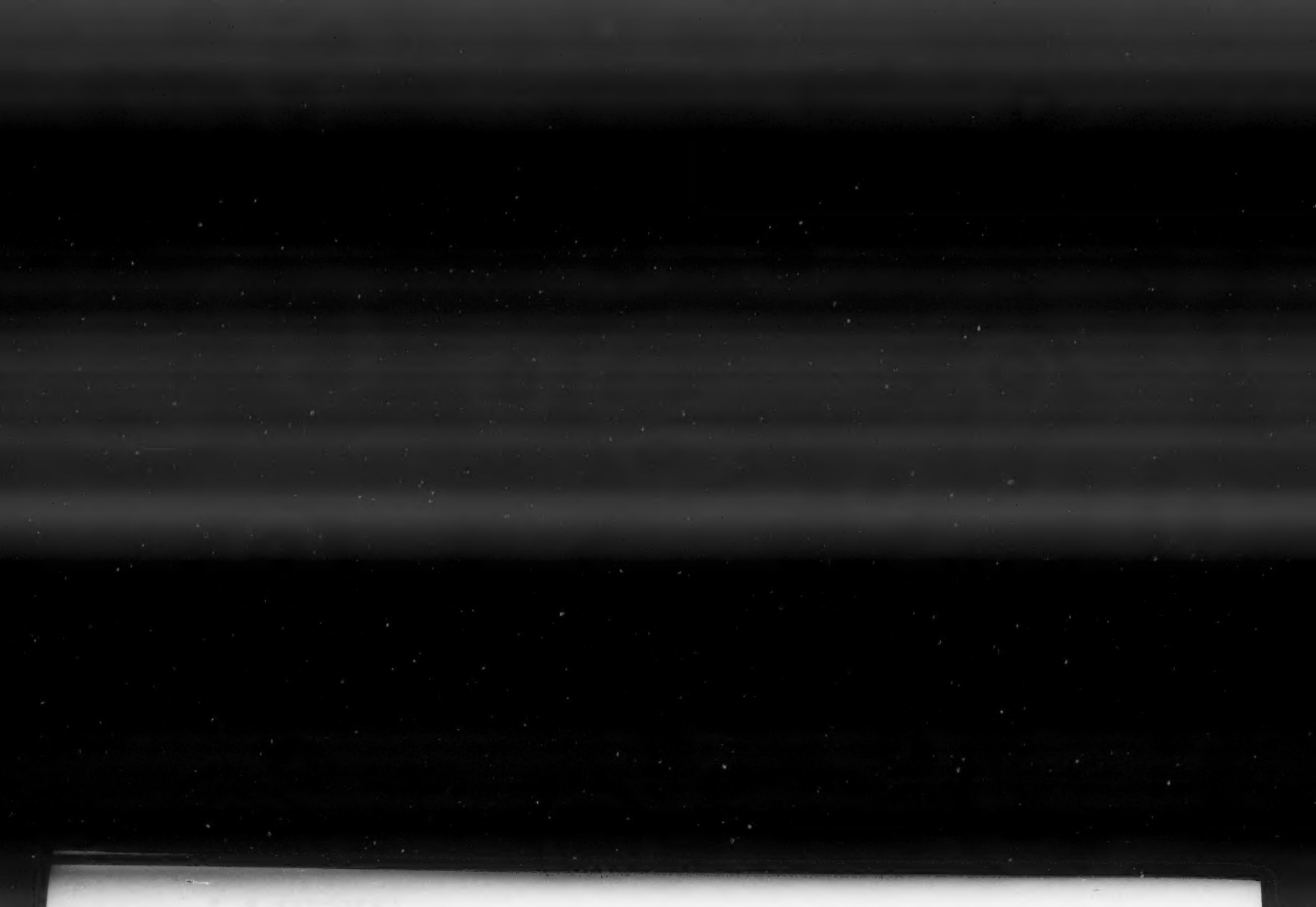

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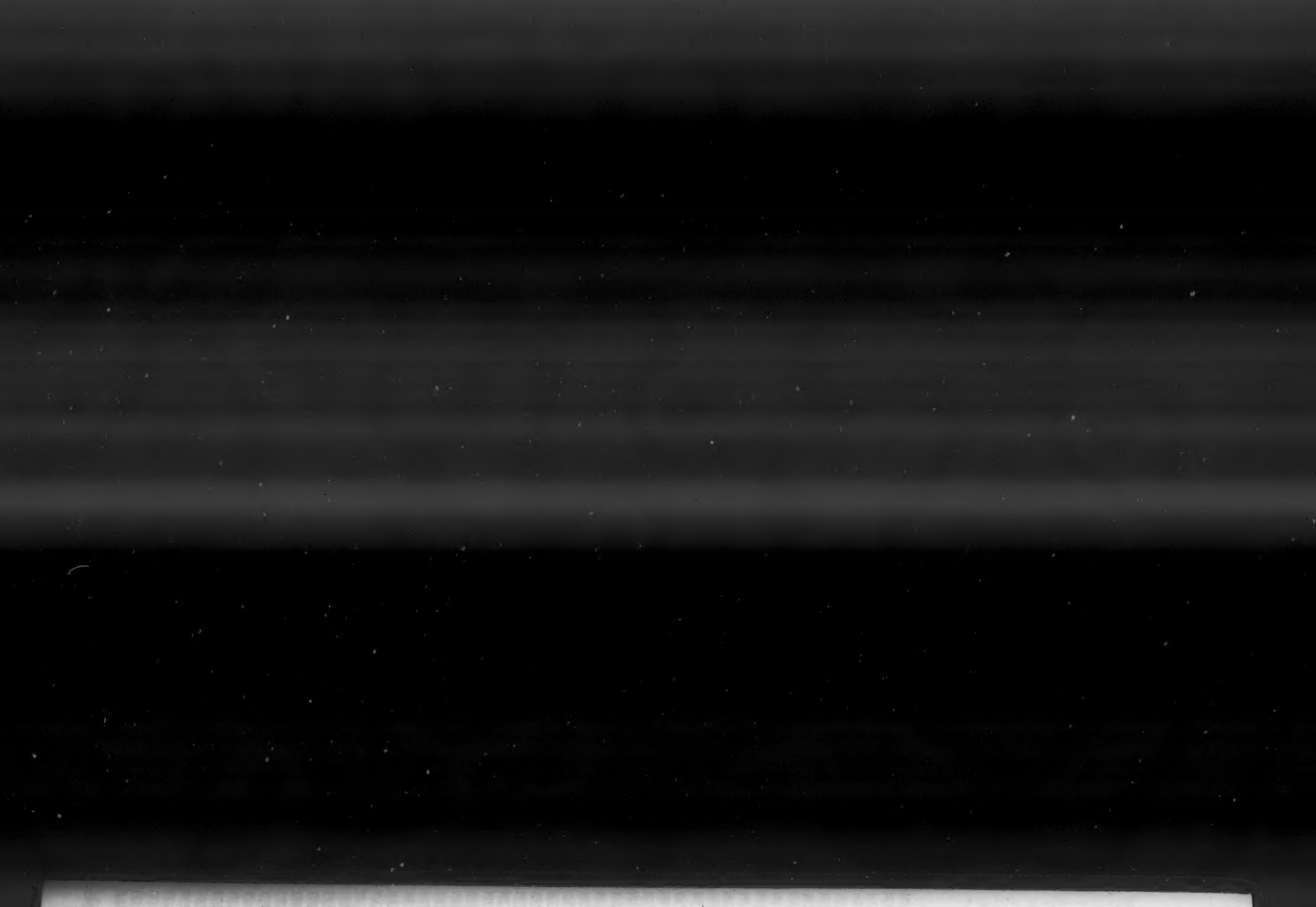

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HOW TO ORDER TRANSLATIONS

The translations reported in this issue are arranged under the categories indicated on the previous pages.

The sub-groups are flexible and used only when there are several translations in a particular sub-group. When the subject of a sub-group is not included in the Contents, reference should be made to the general category into which it falls.

References to sources of original text are given as they appear on the translation, with sufficient editing to assure uniformity in citations.

Listed below are agencies from which translations may be purchased. Each entry in the Technical Translations indicates by symbol the agency from which the translation should be ordered, the cost of the translation (if known), and the number by which the translation amy be ordered, if such a number exists. Make check or money order payable to the agency indicated.

Translations ordered from LC or SLA are available either in microfilm (mi) or photocopy (ph). Microfilm is in 35 millimeter film and requires special reading equipment. If you do not have such a machine, you may be able to use one at a library in your area. Translations ordered from other sources, unless specific information is given to the contrary in the journal entry, are in printed form.

Some of the translation notes for individual translations have been marked with an asterisk preceding the name of the journal. The asterisk indicates that the particular journal is also translated cover-to-cover, (see pg. C-1).

SYMBOLS FOR SOURCES OF TRANSLATIONS

AIP
American Institute of Physics
335 East 45th Street
New York 17, New York

AIS
Argus Information Service
624 N. Eutaw Street
Baltimore 1, Maryland

ANSP
Academy of Natural Sciences
of Philadelphia
19th Street and The Parkway
Philadelphia 3, Pa.

API
Academic Press, Inc.
111 Fifth Avenue
New York 3, New York

ATS
Associated Technical Services, Inc.
P. O. Box 271
East Orange, New Jersey

BIHR
Circulation Manager
Translations of the Beltone
Institute for Hearing Research
2900 West 36th Street
Chicago 32, Illinois

BISI
The Iron and Steel Institute
4, Grosvenor Gardens
London, S. W. 1, England

BR
Technical Library
U. S. Bureau of Reclamation
Commissioner's Office
Building 53, Denver Federal
Center
Denver 2, Colorado

BWRA
British Welding Research
Association
Abington Hall, Abington
Cambridge, England

CB
Consultants Bureau, Inc.
227 West 17th Street,
New York 11, New York

CCT
Consultants Custom
Translations, Inc.
227 West 17th Street
New York 11, New York

CHP
Cleaver-Hume Press Ltd.
31 Wright's Lane
London, W. 8, England

CIDNT
Centralny Instytut
Dokumentacji
Naukowo-Technicznej
Warszawa 12
Aleja Niepodleglosci 188
Poland

CSIRO
Commonwealth Scientific and
Industrial Research Organization Information Service
314 Albert Street,
East Melbourne C. 2,
Victoria, Australia

CTRA
The Librarian
The Coal Tar Research
Association
Oxford Road
Gomersal
Leeds, England

CTT
Columbia Technical Translations
5 Vermont Avenue
White Plains, New York

DI
Circulation Unit
Department of the Interior
Central Library
Room 1149
Washington 25, D. C.

EIS
Engineering Information Services
Kirkham, Preston, Lancashire, England

HB
Henry Brutcher
P. O. Box 157
Altadena, California

HMSO
Her Majesty's Stationery Office
P. O. B. 569
London, S. E. 1, England

HTCBN
Hungarian Trading Company for Books and Newspapers
"Kultura"
Budapest 62, P. O. Box 149

IP
Interscience Publishers, Inc.
250 Fifth Avenue
New York 1, New York

LC
Photoduplication Service
Publication Board Project
Library of Congress
Washington 25, D. C.

LSA
Literature Service Associates
Route 1
Bound Brook, New Jersey

LSB
Language Service Bureau
3093 East Derbyshire Road
Cleveland 18, Ohio

MACL
Maclaren and Sons, Ltd.
Maclaren House
131 Great Suffolk Street
London, S. E. 1, England

MDF
Morris D. Friedman, Inc.
P. O. Box 35
New Newton 65, Mass.

NASA
National Aeronautics and Space Administration,
1520 H Street, N. W.
Washington 25, D. C.

NRCC
National Research Council,
Library
Ottawa 2, Canada

OB
Oliver & Boyd, Ltd.
Tweeddale Court
14 High Street
Edinburgh 1, Scotland

OSA
Optical Society of America, Inc.
33 University Road
Cambridge, Mass.

OTS
Office of Technical Services
Department of Commerce
Washington 25, D. C.

PERA
The Information Manager
Production Engineering
Research Association
Melton Mowbray
Leicestershire, England

PLP
Plenum Press, Inc.
227 West 17th Street
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TECHNICAL TRANSLATIONS

Volume 3, Number 9 Pages 545-620 May 11, 1960

BIBLIOGRAPHY

DISSERTATION[S] FOR DEGREES IN SCIENCE AND ENGINEERING DEFENDED AT USSR HIGHER EDUCATIONAL INSTITUTIONS.
Order from OTS

Trans. from Knizhnaya Letopis' [Moscow]

1957, nos. 51-52 and 1958, nos. 1-2, 370 refs. JPRS: L-1130-N, 60-11111, $1.25
1958, nos. 3-6, 234 refs. JPRS: L-1107-N, 60-11084, $0.75
1958, nos. 7-10, 385 refs. JPRS: L-1131-N, 60-11112, $1.25
1958, nos. 11-14, 487 refs. JPRS: L-1181-N, 60-11206, $1.75
1958, nos. 20-23, 568 refs. JPRS: 2251, 60-11302, $1.75
1958, nos. 33-36, JPRS: L-1187-N, 60-11235, $0.75
1958, nos. 37-40, 200 refs. JPRS: L-1182-N, 60-11217, $0.75
1958, nos. 50-52, JPRS: L-1199-N, 60-11257, $1.00

Library of Congress, Washington, D. C.
EAST EUROPEAN ACCESSIONS INDEX. Mar 60, 275p.
Order from GPO $10.00/year

Designed to serve the English-speaking user, this index lists post World War II publications received by the Library of Congress and over 100 major American research libraries from Albania, Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Rumania, and Yugoslavia in all fields of knowledge. Arrangement in the first part is by country and within each country by 17 subject classes. In addition to the entry in the original language, a translation of the title or a descriptive annotation in English is given for each monograph and periodical, with the tables of contents translated into English for selected periodicals. The second part, comprising approximately two-thirds of the Index, consists of a subject index to all articles appearing in periodicals for which the tables of contents are translated and to all monographs listed.

AGRICULTURE

Ivashko, A. A.
THE NEWEST DEVICES FOR RESEARCH IN AGRICULTURE; ON THE RESULTS OF THE INTERNATIONAL TRAVELLING EXHIBITION OF DEVICES IN MOSCOW (Noveyshiye Pribory dlya Issledovanii v Sel'skom Khozyaystve (K Itogam Mezhdunarodnoy Peredvizhnoy Vystavki Priborov v Moskve)). [1959] 17p. (13 figs. omitted). Trans. A-1095.
Order from LC or SLA mi$2.40, ph$3.30 60-15355

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 6, p. 88-97.

Animal Husbandry

ON THE VACCINE AGAINST BOTULISM IN MINKS. 23 Nov 59, 2p. Trans. V-1508.
Order from LC or SLA mi$1.80, ph$1.80 60-13487

Trans. of Veterinariya (USSR) 1959, v. 36, no. 10, p. 91.

It is announced that the Veterinary Section of the Scientific-Technical Council of the USSR Ministry of Agriculture has recommended to the All-Union Scientific Research Institute of Fur Bearing Animals Breeding and Karakul Breeding that the aluminum formal vaccine should be accepted and that manufacture of the vaccine should be started.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 6 (Soviet Abstracts. Biology). 7 Mar 60, 53p. JPRS: 2335.
Order from OTS $1.00 60-11360

Contents:
Section R. Diseases of Farm Animals. Abstracts 25957-26040.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Demidov, N. V.
METHODS OF CONTROLLING FASCIOLASIS OF LIVESTOCK (Metody Bor'by s Fastsiolezom Zhivotnykh) tr. by M. Slade. [1959] [15]p. (foreign text included) Trans. no. 4410.
Order from LC or SLA mi$2.40, ph$3.30 60-15375

Trans. of Veterinariya (USSR) 1957, v. 34, no. 10, p. 33-38.

Mittelholzer, L., Jr.
TREATMENT OF CHRONIC UDDER EDEMA (Zur Behandlung des chronischen Euteroedems). [1960] [7]p. [4 figs. omitted] 17 refs.
Order from SLA mi$1.80, ph$1.80 60-14184

Trans. of Schweiz[er] Arch[iv für] Tierh[eil]-k[unde] 1959, v. 101 [no. 12] p. 600-605.

Plant Cultivation

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 1 (Soviet Abstracts. Biology). 12 Mar 60, 41p. JPRS: 2369.
Order from OTS $1.00 60-11398

Contents:
Section J. Soil Science. Abstracts 1312-1429.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslaiva.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 13 (Soviet Abstracts. Biology). 22 Mar 60, 65p. JPRS: 2410.
Order from OTS $1.00 60-11418

Contents:
Section M. Cultivated Plants. Abstracts 58482-58594.

Complete translations of Russian-language entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 22 (Soviet Abstracts. Biology). 12 Mar 60, 5p. JPRS: 2368.
Order from OTS $1.00 60-11397

Contents:
Section N. Weeds and Weed Control. Abstracts 100543-100548.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) (Soviet Abstracts. Biology)
Order from OTS $1.00

Contents:
Section O. Plant Diseases. Abstracts 100550-100620. 1958, no. 22, Abstracts 100550-100620, JPRS: 2361, 60-11390
1959, no. 1, Abstracts 1956-2021, JPRS: 2367, 60-11396

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Aleksandrov, Boyan.
CONSERVATION OF NATURAL RESOURCES IN BULGARIA THIRD CATEGORY-FOREST RESERVES. 26 Sep 58, 9p. JPRS(NY)-L-352.
Order from OTS $0.50 PB 141 247T

Trans. of Priroda (Bulgaria) 1957, v. 6, no. 6, p. 26-28.

Andreyev, S. V., Martens, B. K. and others.
A CHAMBER OF ARTIFICIAL CLIMATE FOR RESEARCH IN THE FIELD OF PLANT PROTECTION (Kamera Idkustvennogo Klimata dlya Issledovaniya v Oblasti Zashchity Rastenii). [1959] 3p. (5 illus. omitted). Trans. A-1091.
Order from LC or SLA mi$1.80, ph$1.80 60-15351

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 6, p. 17-18.

Azimov, R. A.
A STUDY OF THE INFLUENCE OF TRACE ELEMENTS ON THE DISTRIBUTION OF SUGARS IN THE DIFFERENT ORGANS OF FRAGARIA, USING PAPER CHROMATOGRAPHY (Izucheniye Vliyaniya Microelementov na Raspredeleniye Sakharov v Razlichnoykh Organakh Fragaria Metodom Bumazhnoy Khromatografii). Feb 60 [18]p. 30 refs. RTS 1342.
Order from LC or SLA mi$2.40, ph$3.30 60-15564

Trans. of Botanicheskiy Zhurnal (USSR) 1958, v. 43, no. 6, p. 831-836.

The vegetative and reproductive organs of the strawberry were found to differ in the sugars they contain. The leaf laminae and petioles and the green fruits contained maltose, sucrose, glucose, fructose, xylose and, in certain cases, arabinose. In the initial growth period and at full maturity the fruits contained only sucrose, glucose and fructose. In the leaf laminae sucrose predominated, and in the petioles and green

and ripe fruits fructose and glucose predominated. Xylose occurred mainly in the petioles; it was found in smaller quantities in other parts of the plant. The main mobile forms of carbohydrates in the strawberry were glucose and fructose. These sugars occurred mainly in the petioles and fruits. During vegetative growth and fruit-formation zinc had no effect on the soluble sugar content of the laminae, but at fruit maturity it raised the level both of monosaccharides and sucrose. Copper, molybdenum, and boron at all stages encouraged a considerable increase in monosaccharides, particularly fructose. In the leaves of manganese-treated plants more sucrose was present during the vegetative phase, whereas at other stages the monosaccharide content increased. In the initial stage of fruit development, solutions of boric acid (0.03%), zinc sulfate (0.03%), potassium permanganate (0.06%), copper sulfate (0.02%), and mixed solutions of 0.02% boric acid plus 0.02% zinc sulfate, and 0.02% boric acid plus 0.03% ammonium molybdate intensified the conversion of translocated sugars to polysaccharide forms. Zinc, manganese, boron and the boron-zinc mixture facilitated the prolongation of anabolism at a high level. By delaying the onset of hydrolytic processes they caused extensive accumulation of polysaccharides, which on dissociation gave rise to soluble sugars, thus improving the quality of the fruits. Copper and molybdenum accelerated the onset of dissociation.

Bel'kov, V. P. and Shutov, I. V.
NEW BOOK ON THE CHEMICAL METHOD OF WEED CONTROL: CHEMICAL MEANS OF WEED CONTROL IN FORESTRY (Novaya Kniga o Khimicheskom Metode Bor'by s Sornyakami: Khimicheskiye Sredstva s Sornoy Rastitel'nost' yu v Lesnom Khozyaystve). Review of book by N. E. Dekatova. [1959] 4p. Trans. A-1078.
Order from LC or SLA mi$1.80, ph$1.80 60-15338

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 61.

Churayev, I. A.
PROBLEM OF COLORADO BEETLE CONTROL (K Probleme Bor'by s Koloradskim Zhukom). [1959] 6p. Trans. A-1075.
Order from LC or SLA mi$1.80, ph$1.80 60-15335

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 43-44.

Damanskaya, L. Yu.
MEANS FOR CONTROL OF ROOT-KNOT EELWORM (Sredstvo Protiv Gallovoy Nematody; Meterodera Radicicola). [1959] 2p. Trans. A-1099.
Order from LC or SLA mi$1.80, ph$1.80 60-15359

Trans. of Zashchita Rastenii [ot Vrediteley i Bolezney] (USSR) 1959, v. 4, no. 6, p. 41.

Tests with Soviet made "Vampam" are described. This preparation is the sodium salt of methyldithiocarbamic acid $CH_3NHC<^{SNa}_{S}$), with specific gravity 1, 233 and active element of 52% (USSR) and 31% (of imported production). It is a liquid of yellow color, smelling like herring, causing irritation and burns when it touches the skin; it is used in the form of a water solution and after introduction into the soil is adsorbed quickly by its particles. Methylisothiocyanite and several other substances are products of its decomposition. It acts as a nematocide strictly locally in the place of introduction. The preparation was effective in doses from 20 to 50 g/sq m and did not produce any visible pathological changes in plants in the process of their growth and development.

Korotkikh, G. I.
HISTORY OF AERIAL FINE-DROP SPRAYING (K Istorii Aviatsionnogo Melkokapel'nogo Opryskivaniya) [1959] [2]p. Trans. A-1079.
Order from LC or SLA mi$1.80, ph$1.80 60-15339

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 63.

See also 60-15340

Kuchayeva, A. G.
USE OF ANTIBIOTICS AGAINST INSECT PESTS OF PLANTS (Primeneniye Antibiotikov Protiv Nasekomykh Vrediteley Rastenii). [1959] 6p. Trans. A-1100.
Order from LC or SLA mi$1.80, ph$1.80 60-15360

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 7, p. 138-140.

Litvinenko, S. N.
ON THE STUDY OF GROWTH SUBSTANCES: THE GIBBERELLINS (K Voprosu ob Izuchenii Rostovykh Stimulyatorov-Gibberellinov). [1959] 8p. (3 figs. omitted) 7 refs. Trans. A-1097.
Order from LC or SLA mi$1.80, ph$1.80 60-15357

Trans. of Botanicheskiy Zhurnal (USSR) 1959, v. 44, no. 5, p. 645-647.

Mel'nikov, N. N.
NEW HERBICIDE - SYMAZINE (Novyy Gerbitsid - Simazin). [1959] 3p. Trans. A-1077.
Order from LC or SLA mi$1.80, ph$1.80 60-15337

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 53.

Protsenko, A. E.
VIRUS DISEASES OF POTATOES (Virusnyye Bolezni Kartofelya). [1960] 6p. (1 illus. omitted). Trans. A-1074.
Order from LC or SLA mi$1.80, ph$1.80 60-15334

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 30-32.

Various virus diseases and measures used against them are surveyed.

Razumov, V. I. and Limar', R. S.
GIBBERELLIN AND THE POSSIBILITIES FOR ITS UTILIZATION IN PLANT GROWING. [1959] 24p. (3 figs. omitted) 54 refs. Trans. A-1098.
Order from LC or SLA mi$2.70, ph$4.80 60-15358

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 9, p. 68-78.

Information is reviewed on (1) the method of the reaction of gibberellin on a plant, (2) the treatment with gibberellin and the yield of plants, and (3) breaking the rest period of seeds and buds with the aid of gibberellin.

Ssu-Chiu, Pai
HOW TO PRODUCE TWO ABUNDANT CROPS IN A TWO-CROP RICE CULTURE PROGRAM. 23 Oct 58, 8p. JPRS(NY)-L-412.
Order from OTS $0.50 PB 141 316T

Trans. of Chung-kuo Nung-pai (Chinese People's Republic) 1958, Suppl. no. 2, p. 1-3, 6, lower half p. 33.

Starostin, S. G.
FINE-DROP AERIAL SPRAYING IN THE CONTROL OF BEET WEEVIL (Melkokapel'noye Avioopryskivaniye v Bor'be so Sveklovichnym Dolgonosikom). [1960] 5p. Trans. A-1080.
Order from LC or SLA mi$1.80, ph$1.80 60-15340

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 19-22.

See also 60-15339

Vershinin, P. V.
SYNTHETIC SOIL STRUCTURE CONDITIONERS (Ob Iskusstvennykh Pochvennykh Strukturoobrazovatelyakh). [1959] 25p. (2 figs. omitted) 26 refs. Trans. A-1072.
Order from LC or SLA mi$2.70, ph$4.80 60-15332

Trans. of *Pochvovedeniye (USSR) 1958, no. 10, p. 28-37.

A series of organic compounds that improve soil structure were suggested at the Agrophysical Institute 26 years ago. But the amount of these substances needed to obtain high indicators of structure formation was large and, therefore, served as the main obstacle to their utilization in practice. In the postwar years new structure stabilizing substances of a high molecular type of polymers comprised chiefly of derivatives of acrylic, metacrylic and maleic acids were developed in the USA. The amounts of these substances required for soil structure stabilization are 10-20 times smaller than those of humates and related substances. A study of the nature of the reciprocal action occurring between polymers and soil particles, and the method of their introduction into the soil will permit developing substances that will completely stabilize soil structure at the rate of a few tens of kilograms per hectare. (Author's conclusions)

Vorontsov, A. I.
COORDINATION CONFERENCE ON PROTECTION OF FORESTS (Koordinatsionnoye Soveshchaniye po Zashchite Lesa). [1960] 6p. Trans. A-1083.
Order from LC or SLA mi$1.80, ph$1.80 60-15343

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 4, p. 141-142.

ASTRONOMY

Shklovskiy, I. S.
CORPUSCULAR EMISSION OF THE EARLY TYPE STARS AS A POSSIBLE CAUSE OF EMISSION OF THE NEBULAE IN THE 1225-1350 Å REGION (Korpuskulyarnoye Izlucheniye Zvezd Rannykh Spektral'nykh Tipov kak Vozmozhnaya Prichina Izlucheniya Tumannostey v Oblasti 1225-2350 Å) tr. by A. Pingell. 4 Dec 59 [12]p. 13 refs. N R L Trans. no. 770.
Order from OTS $0.50 60-21042

Trans. of *Astronomicheskiy Zhurnal (USSR) 1959, v. 36, no. 4, p. 579-584.

Elementary processes taking place during the passage of corpuscles ejected by a hot star through a gaseous nebula are considered. The charge transfer processes at the ground and excited levels and also excitation and ionization due to collisions will be most significant. As a result of such processes, the corpuscles will lose energy mainly in the form of L_α quanta with strong frequency displacements. This explains the ultraviolet emission of nebulae detected by means of rockets. The scattering of L_α quanta in the nebula by fast corpuscles, which have become partly neutralized is an additional source of emission. Thus, the source of ultraviolet emission of a gaseous nebula may be the powerful corpuscular emission of stars, the energy of which is comparable and sometimes exceeds the photon emission of these stars. (Author)

BEHAVIORAL SCIENCES

Sokolov, M. V.
CONGRESS OF THE SOCIETY OF PSYCHOLOGISTS (NO. 1). 11 Feb 60, 28p. JPRS: 2225.
Order from OTS $0.75 60-11276

Trans. of Voprosy Psikhologii (USSR) 1959 [v. 5] no. 5, p. 170-180.

Personnel and Training

SCIENTIFIC AND TECHNOLOGICAL MANPOWER RESOURCES IN CHINA. 14 Jan 60 [28]p. 54 refs. AF 1419378.
Order from LC or SLA mi$2.70, ph$4.80 60-13523

Trans. from publications of China, Hong-Kong, U. S., U. S. S. R., England, West Germany, Rumania and Hungary, 1952-59.

Anisimov, A.
A NEW REGULATION CONCERNING QUALIFICATIONS FOR PROFESSIONAL DRIVERS (Novoye Polozheniye o Prisvoyenii Kvalifikatsii Shofera) tr. by G. T. Cranford. July 59 [3]p. Library Communication no. 746; M 1043.
Order from LC or SLA mi$1.80, ph$1.80 60-13746

Trans. of Avtom[obil'nyy] Transp[ort] (USSR) 1959, v. 37, no. 2, p. 48.

Ponomarev, V.
STANDARDIZATION OF DRIVING TESTS (Uporyadochit' Priyem Ekzamenov po Vozhdemiyu Avtomobil'ya) tr. by G. T. Cranford. June 59 [1]p. Library Communication no. 745; M 1042.
Order from LC or SLA mi$1.80, ph$1.80 60-13745

Trans. of Avtom[obil'nyy] Transport (USSR) 1959, v. 37, no. 2, p. 47.

Examinations in traffic regulations are carried out by the Qualification Commission of the State Motor Inspection Institute (GOSAVTOINSPEKTSIYA) by means of a single card system. This system is used to arrange and facilitate the work of the Commission, and to set out the specific requirements for examinees. But in other ways examinations in the actual driving of the vehicle are lacking in common requirements and criteria for evaluating the skill of the examinees. In these circumstances the subjective attitude of one or other member of the Commission could become a determining factor in his testing of the driver's skill. Frequently the members of one and the same Commission make different demands on the examinee. Such diversity hampers the work of driver training institutions and lowers the standard of driving tests. State Motor Inspection Institute of the U S S R should set specific questions and criteria for the guidance of examiners during driving tests. (The translation is presented here in its entirety.)

BIOLOGICAL SCIENCES

Malmejac, J., Neverre, G. and others.
DEMONSTRATION OF DOGS WHICH HAD UNDERGONE RIGHT VENTRICULOTOMIES OF 30 TO 45 MINUTES, UNDER HYPOTHERMIA AT 19-20 (Présentation de Chiens Ayant Subi des Ventriculotomies Droites de 30 a 45 Minutes sous Hypothermie à 19-20) tr. by Tatiana Boldyreff. 12 June 59, 8p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-18144

Trans. of Afrique Française Chirurgicale (Algeria) 1958, v. 16, p. 55-57.

An intermittent intra-carotid supply of fresh blood, affords to double, on the average, the possible duration of right ventriculotomies, done under hypothermia, at 19-20°. Then the heart may remain wide open for some forty minutes and the circulatory arrest is up to fifty minutes. The splanchnic organs do not seem to be affected, at such a temperature, from such along ischemia. The encephalic and myocardial nerve regions are protected by simple intracarotid blood injections. (Author)

Anatomy and Physiology

PROBLEMS OF HEMATOLOGY AND BLOOD TRANSFUSION, 1959, VOL. 4, NO. 6. Jan 60, 78p.
Order from PP $40.00/year

Trans. of Problemy Gematologii i Perelivaniya Krovi (USSR) 1959, v. 4, no. 6, p. 3-62.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 11 (Soviet Abstracts. Biology). 9 Mar 60. 56p. JPRS: 2351.
Order from OTS $1.00 60-11380

Contents:
Section S. Human and Animal Morphology. Abstracts 50242-50440.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Bernhard, Wilhelm, Gautier, Alain, and Rouiller, Charles.
THE IDEA OF "MICROSOMES" AND THE PROBLEM OF THE CYTOPLASMIC BASOPHILIA (La notion de "Microsomes" [et le Problème de la] Basophilie Cytoplasmique) tr. by W. E. Everhardy. 22 June 59, 44p. (refs. 18 figs. omitted).
Order from LC or SLA mi$3.30, ph$7.80 59-18114

Trans. of Arch[ives] d'Anat[omie] Microsc[opique] (France) 1954, v. 43, p. 236-271.

Donnet, V. and Ardisson, J-L.
RECENT DATA REGARDING PULMONARY CIRCULATION (Données Recentes sur la Circulation Pulmonaire) tr. by W. Grosjean. 21 Nov 58, 116p. (11 figs. and bibliography omitted).

Order from LC or SLA mi$6.00, ph$18.30 59-12291

Trans. of Journal de Physiologie (France) 1958, v. 50, no. 3, p. 587-661 (p. 650-661 omitted).

Kasatkin, N. I.
EARLY ONTOGENESIS OF REFLEX ACTIVITY IN THE CHILD tr. by P. V. DePorte. 23 Feb 60, 33p. No. 2-31-60.
Order from LC or SLA mi$3.00, ph$6.30 60-15608

Trans. of Zhurnal Vysshey Nervnoy Deyatel'nosti (USSR) 1957, v. 7, no. 6, p. 805-818.

Biochemistry

Bocharova, L. P. and Ukraynez, N. S.
THE EFFECT OF PHOSPHORUS-ORGANIC INSECTICIDES ON ASCORBINOXIDASE. [1959].
Order from LSB $3.00 LSB-108

Trans. of *Biokhimiya (USSR) 1958, v. 23, no. 3, p. 388-389.
Another translation is available from CB.

Jayle, M. F. and Conas, G.
PROPERTIES AND CHEMICAL COMPOSITION OF SERUM HAPTOGLOBIN (Proprietés et Constitution Chimique de l'Haptoglobine Sérique) tr. by P. Hajdu. 6 May 59, 22p. 25 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-16141

Trans. of Soc[iete de] Chim[ie] Biol[ogique] Bull[etin] (France) 1952, v. 34, no. 1/2, p. 65-76.

Haptoglobin is a homogeneous α_2-globulin which can be specifically titrated by means of a peroxydase micromethod after combining it with equine hemoglobin. In the present work it is shown that (1) the molecular weight of haptoglobin calculated from nitrogen and protein sugar is approximately 120,000; (2) haptoglobin contains 5% carbohydrates, but is devoid of lipids and cholesterol; and (3) the combination between hemoglobin and haptoglobin is equimolecular, uniting 120,000 grams of the α_2 globulin called haptoglobulin 60 70,000 grams of hemoglobin. Thus haptoglobulin titration may be regarded as a specific method for α_2-globulinometry. In a normal serum the haptoglobin fraction represents 1 to 2% of total proteins. In pathological sera the haptoglobin concentration may surpass 10% of total proteins, which would account for the increase in α_2 globulins measured by electrophoresis. The increase in haptoglobin is connected with the adaptation reactions of the organism; it can also be brought about by the administration of ACTH to humans. (Author)

Kisielinski, T. and Lyszczarz, J.
ADVANCES IN RESEARCH ON THE ACTION OF ORGANOPHOSPHORUS COMPOUNDS. 11 Jan 60, 23p. 77 refs. JPRS: L-1980-D.
Order from OTS $0.75 60-31017

Trans. of Postepy Biochemii (Poland) 1959, v. 5, no. 1, p. 47-65.
Research is surveyed on the role of acetylcholine and cholinesterase in the organism and on compounds which accelerate the hydrolysis of organophosphorus poisons in the organism.

Staub, Anne-Marie.
ROLE OF ANTIPOLYSACCHARIDE ANTIBODIES IN THE AGGLUTINATION OF TYPHOID ORGANISMS (Role des Anticorps Antipolyosidiques dans l'Agglutination des Bacilles Typhiques) tr. by P. DePorte. 18 Mar 59, 26p. (4 figs. omitted) 15 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-14529

Trans. of Institut Pasteur [Paris]. Annales (France) 1954, v. 86, no. 5, p. 618-635.

Stepanenko, B. N.
SOME RESULTS OF STUDY OF THE CHEMICAL STRUCTURE OF GLYCOGENS, tr. by P. V. DePorte. 13 Jan 60, 26p. (8 figs. omitted) 33 refs. No. 1-6a-60.
Order from LC or SLA mi$2.70, ph$4.80 60-13457

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1957, no. 6, p. 706-717.

Botany

Baranov, P. A.
WITH THE CHINESE BOTANISTS. 15 Feb 60, 14p. 1 ref. JPRS: 2273.
Order from OTS $0.50 60-11293

Trans. of Akademiya Nauk SSSR. Vestnik, 1959 [v. 29] no. 9, p. 79-86.

Observations of a Soviet botanist (corresponding member of the Academy of Sciences, USSR) during a 3-month visit (October-December 1958) to botanical institutions of Peiping, Wuhan Province, Nanking, Shanghai, Hangcho, Canton, and Kunming are presented.

Moshkova, N. O.
A NEW SPECIES OF STIGEOCLONIUM IN THE FLORA OF THE UKRAINIAN RSR (Pro Novyy Vyd Stygeokloniya dlya Flory Ukrayins'koyi RSR). Mar 60 [7]p. 8 refs. RTS 1287.
Order from LC or SLA mi$1.80, ph$1.80 60-15684

Trans. of Ukrayins'kyy Botanichnyy Zhurnal (USSR) 1958, v. 15, no. 2, p. 84-86.

In the algological material collected in 1954 in the water reservoirs of the steppe zone of the Ukrainian RSR, a plant belonging to the family Chaetophoraceae and interesting from the floristic viewpoint was found, which can be related to Stigeoclonium glomeratum (Hazen) Collins. This alga corresponds best

with the original description and drawing given by Hazen (1902). The plant was found growing on ligneous substrate in two slowly running, shallow rivulets of southern Ukraine: Mertvovoda and Tyligula.

General Biology

BULLETIN OF EXPERIMENTAL BIOLOGY AND MEDICINE, 1959, VOL. 48, NO. 8, P. 917-1045. 1960, 1v.
Order from CB $10.00, $20.00/year

Trans. of Byulleten' Eksperimental'noy Biologii i Meditsiny (USSR) 1959, v. 48, no. 8, p. 3-[118].

BULLETIN OF EXPERIMENTAL BIOLOGY AND MEDICINE, 1959, VOL. 48, NO. 9, P. 1047-1182. 1960, 1v.
Order from CB $10.00, $20.00/year

Trans. of Byulleten' Eksperimental'noy Biologii i Meditsiny (USSR) 1959, v. 48, no. 9, p. 3-[132].

LYSENKO, MICHURINISM, AND SOVIET BIOLOGY. [1960] [12]p. 20 refs. PAL 59-2.
Order from OTS $0.50 60-21050

The present review of the situation in Soviet genetics and biology since 1953 tends to refute the widely held Western wishful viewpoint that totalitarianism and high-quality scientific accomplishment are inherently incompatible. Soviet biological and agricultural research are probably better than at any time since the late 1930's. Events that have helped create these favorable conditions are: (1) the removal of Lysenko as president of the All-Union Academy of Agricultural Sciences in 1956; (2) the toleration of classical geneticists and their return to research positions; (3) the official acceptance of hybrid corn; (4) the adoption of polyploidy as a breeding tool; and (5) the exploitation of biochemical and radiation methods in microbial genetics. Although the "official" point of view in Soviet biology is still Michuristic, and will probably remain so for some time, recent events suggest that ideological theories will be manipulated or interpreted so as not to place excessive barriers upon sound research in biology and agriculture. High-level statements on the future direction of Soviet biology indicate that research in fundamental genetics will stress the structural basis of heredity and variation within the cell, the physical and chemical aspects of cellular organization and processes, and the effect of external mutation-inducing factors at the cellular level. The results should be an increased agricultural production and important knowledge concerning the genetic effects of radiation.

Thiéry, J. P.
THE ERGASTOPLASM OF PLASMOCYTES IN THE LIVING STATE (L'Ergastoplasme des Plasmocytes a l'Etat Vivant) tr. by P. Hajdu. 19 Mar 59, 8p. (12 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14528

Trans. of Revue d'Hématologie (France) 1955, v. 10, no. 4, p. 745-752.

The ergastoplasm of plasmocytes can be seen in phase contrast in living cells. It is revealed in the form of a system of sacs and small channels ranged parallel around the nucleus and the archoplasm. When these cells are compressed the ergastoplasmic sacs are elongated, then vacuolized in the manner of Mott's cells. These structures may be compared to those seen in the electron microscope. (Author) (See also 59-14526)

Thiéry, J. P.
STUDY OF PLASMOCYTES IN PHASE CONTRAST AND IN THE ELECTRON MICROSCOPE. III. PLASMOCYTES WITH RUSSELL'S BODIES AND WITH CRYSTALS (Étude sur le Plasmocyte en Contraste de Phase et en Microscope Électronique. III. Plasmocytes à Corps de Russell et à Cristaux) tr. by P. Hajdu. 20 Mar 59, 15p. (22 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-14526

Trans. of Revue d'Hématologie (France) 1958, v. 13, no. 1, p. 61-77.

The formation and ultra structure of plasmocytes with Russell's bodies (Mott's cells) and plasmocytes with crystals have been studied in phase contrast microscopy and electron microscopy. The Russell bodies are produced by condensation of material assimilated by the cell and accumulated in the ergastoplasm. Large rectangular crystals may develop from the Russell bodies. Fine, spindle-shaped crystals may be produced directly from the amorphous substance accumulated in the ergastoplasm. This is a physiological development of the plasmocyte and not degeneration. High resolution electron microscopy has shown a periodic structure of the intracellular crystals, which will facilitate their identification. (Author) (See also 59-14527)

Thiéry, J. P.
STUDY ON PLASMOCYTES IN THE LIVING STATE. II. EXCRETION OF VACUOLES OF A NUCLEAR ORIGIN (Étude sur le Plasmocyte à l'État Vivant. II. Excrétion de Vacuoles d'Origine Nucléaire) tr. by P. Hajdu. 19 Mar 59, 11p. (10 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-14527

Trans. of Revue d'Hématologie (France) 1957, v. 12, no. 2, p. 211-221.

The formation of vacuoles starting out from the nucleus may be observed in plasmocytes in the phase contrast microscope. These vacuoles remain in the cytoplasm for a certain period and are then ejected into the external region. This phenomenon has been observed in ultra thin sections examined in the electron microscope. They are not alteration or degeneration vacuoles. (Author) (See also 59-14528)

Atanasiu, P. and Lépine, P.
MULTIPLICATION OF THE STREET RABIES VIRUS ON MOUSE EPENDYMOMA IN TISSUE CULTURE. CYTOLYTIC EFFECT (Multiplication du Virus Rabique des Rues sur la Tumeur Épendymaire de la Souris en Culture de Tissus. Effet Cytolytique) tr. by P. DePorte. 30 Jan 59, 12p. (6 figs. omitted). 22 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-12912

Trans. of Institut Pasteur, Paris. Annales (France) 1959, v. 96, no. 1, p. 72-78.

Kovaleva, V. V.
THE STUDY OF STAPHYLOCOCCUS TOXIN IN EXPERIMENT WITH DIFFUSIONAL PRECIPITATION. 4 Feb 59, 6p. (2 figs. omitted) 5 refs. JPRS: L-508-N.
Order from OTS $0.50 59-13090

Trans. of *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1958 [v. 29] no. 10, p. 129-132.

Pearson, H. E., Atanasiu, P. and Lépine, P.
MULTIPLICATION OF RABIES VIRUS IN AN ASTROCYTOMA TRANSPLANTABLE IN THE MOUSE (La Multiplication du Virus Rabique dans un Astrocytome Transmissible chez la Souris) tr. by W. Grosjean. 2 Feb 59, 6p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-12914

Trans. from Inst[itut] Pasteur, Paris. Ann[ales] (France) 1958, v. 94. Jan.

Astrocytoma, transmissible by subcutaneous passage to the C3H mouse, produces tumors of 5 to 10 g after 13 to 20 days. This tumor has the capacity of receiving rabies virus and permitting its multiplication to a titer close to the one obtained in the cerebral tissue of the normal mouse. Rabies virus causes the formation in a tumor cells of piknotic and necrotic nuclei. Mice receiving the infected tumor die from rabies on the 14th or 15th day; those receiving the infected tumor and antirabies serum die from the tumor on the 25th and the 35th day (tumor without virus). (Author)

Reiter, Hans.
ON THE PROPAGATION OF PURE CULTURES OF SPIROCHAETA PALLIDA, SPIROCHAETA DENTIUM AND SPIROCHAETA RECURRENS. [1959] 6p. 2 refs.
Order from SLA mi$1.80 60-14087

Trans. of unidentified mono., Berlin-Dahlem, n.d.

Roschka, R.
A NEW METHOD FOR THE PREPARATION OF HIGH-VALUE O IMMUNE SERA OF THE SALMONELLA GROUP. [1959] 8p. (3 tables omitted) 3 refs.
Order from SLA mi$1.80, ph$1.80 60-14090

Trans. of Klin[ische] Med[izin] (Austria) 1950, v. 5 [no. 2] p. 88-93.

Staub, A. M., Tinelli, R. and others.
IMMUNOLOGICAL STUDY ON SALMONELLAS. V. THE ROLE OF CERTAIN SUGARS, IN PARTICULAR THE 3-6 DIDESOXYHEXOSES, IN THE SPECIFICITY OF KAUFFMANN-WHITE O ANTIGENS (Étude Immunochimique sur les Salmonella. V. Role de quelques Sucres, et en Particulier des 3-6 Didésoxyhexoses, dans la Spécificité des Antigènes O du Tableau de Kauffmann-White) tr. by P. Hajdu. 21 July 59, 43p. (2 figs. omitted) 56 refs.
Order from LC or SLA mi$3.30, ph$7.80 59-18467

Trans. of Institut Pasteur, Paris. Annales (France) 1959, v. 96, no. 3, p. 303-332.

Studies on inhibition, by simple sugars of homologous and cross precipitations of anti-Salmonella sera by specific polysaccharides, allow us to establish the nature of the terminal sugars partially responsible for the specificity of 1, 2, 4, 8, 9, 12 and 35 Kauffmann-White O antigens. Among the sugars the newly discovered 3-6 didesoxyhexoses play a predominant role. The role of tyvelose (3-6 didesoxy-D-galactose) plays the same role at the end of group B antigen 4, as well as colitose (3-6 didesoxy-L-galactose) at the end of group P antigen 35. The immunological complexity of antigen 12 (12_1, 12_2, 12_3) corresponds to the presence of two side chains, one terminating in rhamnose, the other in glucose. The role played by the terminal paratose (3-6 didesoxy-D-glucose) in the specificity of group A antigen 2 is discussed as well as the role of the terminal abequose in group C_2 antigen 8. The role of this abequose in the very weak cross precipitations sometimes observed between group B antigen 4 and group C_2 antigen 8 is established. The study of cross precipitations of anti-S. paratyphi B sera by galactomannans allows us to assume the presence of the oligosaccharidic chain "abequose-galactose-mannose" in antigen 4. The importance of these results is discussed both from the bacteriological (Kauffmann-White table) and the immunological point of view (role of polar and apolar groups in the specificity of terminal sugars, cross reactions, role of species and individual on antibody specificity). These results give some chemical basis to the Kauffmann-White table, established so far only on the basis of serological data; they explain the mechanism of some cross reactions between Salmonellas; they suggest that it would be possible to prepare specific sera by a less cumbersome method than the present absorption methods. (Author)

Vuksic, Lj., Arsic, B., and others
ISOLATION OF COXIELLA BURNETI FROM STABLE DUST. 6 Oct 58, 7p. 4 refs. JPRS(DC)-L-530.
Order from OTS $0.50 PB 141 291T

Trans. of Higijena (Yugoslavia) 1956, v. 8, no. 4, p. 240-245.

Neurology and Psychiatry

Alema, G.
HALLUCINATIONS CAUSED BY LYSERGIC ACID IN A BLIND PERSON WITHOUT EYEBALLS (Allucinazioni da Acido Lisergico in Cieco Senza Bulbi Oculari) tr. by Paul V. DePorte. 20 Apr 59, 32p. 17 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-14863

Trans. of Rivista di Neurologia (Italy) 1952, v. 22, p. 720-733.

Breydo, M. G., Gurfinkel', V. S. and others.
A BIOELECTRIC CONTROL SYSTEM. 9 Feb 60, 16p. 13 refs. JPRS: 2240-N.
Order from OTS $0.50 60-11255

Trans. of Problemy Kibernetiki (USSR) 1959, no. 2, p. 203-212.

The utilization of "bio-precision signals" (i.e., neural impulses) for the purpose of controlling prosthetic devices is discussed.

Savchenko, M. G. and Shogam, A. N.
PSYCHIATRIC TRAINING IN THE USSR; THE SYSTEMS AND FORMS OF TRAINING PHYSICIAN-PSYCHIATRISTS AND NEUROPATHOLOGISTS IN THE USSR [AND] CERTAIN PROBLEMS OF THE RECONSTRUCTION OF THE TEACHING OF PSYCHIATRY. 15 Feb 60, 8p. JPRS: L-1202-N.
Order from OTS $0.50 60-11263

Trans. of Zhurnal Nevropatologii i Psikhiatrii (USSR) 1959, v. 59, no. 10, p. 1253-1255.

Pathology

PROBLEMS OF ONCOLOGY, 1959, VOL. 5, NO. 5. Jan 60, 128p.
Order from PP $60.00/year

Trans. of Voprosy Onkologii (USSR) 1959, v. 5, no. 5, p. 515-640.

Babenko, O. F., Buyanova, O. F. and others.
ALL-UNION CONFERENCE ON THE CONTROL OF PARASITIC DISEASES. 14 Mar 60, 19p. 3 refs. JPRS: 2349.
Order from OTS $0.50 60-11387

Trans. of Med[itsinskaya] Parazitol[ogiya] i Parazitarnyye Bolezni (USSR) 1959 [v. 28] no. 3, p. 364-373.

Fine, J. M., Creyssel, R., and Morel, P.
THE APPLICATION OF STARCH GEL ELECTROPHORESIS TO THE STUDY OF THE SERUM COMPONENTS IN DYSPROTEINEMIA (L'Apport de l'Électrophorèse en Gel d'Amidon a l'Etude des Constituants Protéiques Sériques au Cours des Dysproteinemies), tr. by P. Hajdu. 3 Aug 59, 14p. (4 figs. 1 plate 5 tables omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-18800

Partial trans. of Revue d'Hematologie (France) 1959, v. 14, no. 1, p. 75-89.

Starch gel electrophoresis has been applied to the study of various dysproteinemic sera and the results have been compared to those of other methods of investigation. While of great value in the differential diagnosis of myeloma and macroglobulinemia, starch gel electrophoresis is chiefly important from the biochemical standpoint of its considerable power of selection which enables it to contribute effectively to the identification of the serum properties encountered in dysproteinemias. (Author)

Golovin, G. V.
A LONG-LASTING FOLLOW-UP OF EXPERIMENTAL BONE CONSOLIDATION BY THE GLUE "OSTEOPLAST". Feb 60 [6]p. [5 figs. omitted] 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-14266

Trans. of Vestnik Khirurgii (USSR) 1958, v. 81, no. 10, p. 67-71.

Investigations relating to the development of "seamless fixation gluing" of autotransplants in rabbits are reported. The substance used is described variously as a liquid, a paste, or a coating. Observation over a period of 3 years has established the fact that the material is perfectly harmless to the organism, and that it does not disturb the normal course of regenerating processes.

Govorov, A. I.
SCIENTIFIC SESSION OF THE MILITARY MEDICAL ORDER OF LENIN ACADEMY IMENI S. M. KIROV, USSR. 16 Dec 59, 8p. JPRS: L-1970-D.
Order from OTS $0.50 60-31007

Trans. of Voyenno-Meditsinskiy Zhurnal (USSR) 1959, no. 7, p. 91-94.

Hurter, Eric.
ARTHROSCOPY, A NEW METHOD FOR EXPLORATION OF THE KNEE (L'Arthroscopie, Nouvelle Methode d'Exploration du Genou) tr. by Tatiana Boldyreff. 8 June 59, 11p. 1 ref.
Order from LC or SLA mi$2.40, ph$3.30 50-18142

Trans. of Rev[ue de] Chir[urgie] Orthop[édique et Réparatice de l'Appareil Moteur] (France) 1955, v. 41, p. 763-766.

Ivanova, M. A.
IN THE PRESIDIUM OF THE ACADEMY OF MEDICAL SCIENCES USSR. 15 Feb 60, 12p. JPRS: 2208.
Order from OTS $0.50 60-11254

Trans. of Akademiya Meditsinskikh Nauk SSSR, Vestnik, 1959, v. 14, no. 12, p. 84-[89].

Kamenov, E.
THE TASKS OF THE MEDICAL ANTIEPIDEMIC SERVICE. 9 Oct 58, 14p. JPRS(NY)-L-364.
Order from OTS $0.50 PB 141 262T

Trans. of Zdravno Delo (Bulgaria) 1957, v. 10, no. 2, p. 1-10.

Kaufman, B. D., Gorodilova, V. V. and others.
ACCOUNT OF THE JOINT SESSION OF THE SCIENTIFIC COUNCILS OF THE ONCOLOGICAL INSTITUTES OF MOSCOW AND LENINGRAD (USSR) AND WARSAW, KRAKOW, AND GLIWICE (POLISH PEOPLE'S REPUBLIC) HELD 6-15 APR 59 IN MOSCOW AND LENINGRAD. 15 Feb 60, 18p. JPRS: 2217.
Order from OTS $0.50 60-11265

Trans. of *Voprosy Onkologii (USSR) 1959, v. 5, no. 10, p. 498-505.

Topics are noted of papers that were presented.

Karapetyan, G. N.
ALL-RUSSIAN CONGRESS OF THERAPEUTISTS (NO. 1). 16 Mar 60, 13p. JPRS: 3078.
Order from OTS $0.50 60-31095

Trans. of Klinicheskaya Meditsina (USSR) 1959, v. 37, no. 6, p. 6-14.

Topics are noted of papers that were presented to the Congress, which met in Moscow on December 8 to 13, 1958. Titles and authors of some of the papers are given, and in some cases brief summaries of the papers are presented.

Kommerell, B.
DISPLACEMENT OF THE OESOPHAGUS BY AN ABNORMAL COURSE OF THE ARTERIA SUBCLAVIA DEXTRA (ARTERIA LUSORIA) tr. by J. B. Sykes. 1955 [10]p. 6 refs. A. E. R. E. Lib/Trans. 559.
Order from SLA mi$1.80, ph$1.80 59-17478

Trans. of Gebiete der Röntgenstrahlen [sic] 1936, v. 54, no. 6, p. 590-595.

Nikiforov, N.
QUALITATIVE INDEXES IN ANTIEPIDEMIC WORK. 9 Oct 58, 2p. JPRS(NY)-L-365.
Order from OTS $0.50 PB 141 263T

Trans. of Zdravno Delo (Bulgaria) 1957, v. 10, no. 2, p. 39.

Samoylova, L. M.
ALL-UNION CONGRESS OF PATHOLOGICO-ANATOMISTS (NO. 3). 15 Mar 60, 10p. JPRS: 2362.
Order from OTS $0.50 60-11391

Trans. of Sovetskaya Meditsina (USSR) 1959 [v. 23] no. 12, p. 124-128.

Topics are noted of papers that were presented to the Congress, which met in Khar'kov on July 6 to 11, 1959. Titles and authors of some of the papers are given, and in a few cases brief summaries of the papers are included.

Schaub, F.
PROGNOSIS OF SUBACUTE BACTERIAL ENDOCARDITIS (Zur Prognose der Endocarditis Lenta). Feb 60 [8]p. [2 figs. omitted] 2 refs.
Order from SLA mi$1.80, ph$1.80 60-14179

Trans. of Cardiologia (Switzerland) 1959, v. 35 [no. 5] p. 316-323.

An analysis is presented of the various factors which determine the outcome of the disease and which have to be considered for the choice and the doses of the antibiotic and the duration of its application. The analysis is based on 156 personal cases followed from 1 to 11 1/2 years after the acute illness. The total mortality is 33% (15% in the first 2 months, 17% for the long term follow up period).

Vesin, P., Renault, H., and Cattan, R.
IDIOPATHIC HYPOPROTEINEMIA. A STUDY OF ITS MECHANISM WITH THE POLYVINYLPYRROLIDONE-I^{131} TEST (L'Hypoprotéinémie Idiopathique. Étude de son Mécanisme par le Test au Polyvinylpyrrolidone-I^{131}) tr. by P. Hajdu. 30 June 59, 7p.
Order from LC or SLA mi$1.80, ph$1.80 59-18133

Trans. of Société Médicale des Hôpitaux de Paris. Bulletins et Mémoires (France) 1959 [ser. 4] v. 75, p. 9-11 and 319-322.

In a patient with idiopathic hypoproteinemia with a spruelike syndrome, the intravenous administration of a macromolecule, namely polyvinylpyrrolidone, labeled with I^{131}, shows considerable passage of the labeled substance into the intestine. This patient may be classed within the framework of Gordon's "exudative enteropathy" in which hypoalbuminemia is attributed not to an insufficient hepatic synthesis, but to an intestinal loss of proteins. The importance of Gordon's test with P. V. P., as a means of studying hypoproteinemias, is emphasized. (Author) r)

Verlinde, J. D., Wilterdink, J. B. and others.
ACTIVE IMMUNIZATION AGAINST POLIOMYELITIS WITH A VACCINE OF ATTENUATED VIRUS, PTS. I AND II tr. by P. Pallamary (pt. I). 27 Oct 58, 37p. 37 refs.

Order from LC or SLA mi$3.00, ph$6.30 59-12108

Trans. of Nederlands Tijdschrift voor Geneeskunde (Netherlands) 1958, v. 102, no. 24, p. 1144-49 (pt. II).

Thirty-nine strains (14 of type I, 6 of type II and 19 of type III) isolated from the stools of 21 vaccinated subjects were tested for neurotropism by intraspinal and intracerebral inoculation of Cynomolgus monkeys. None of the type I and type II strains showed any increase of neurotropism, but a slightly increased neurotropism was seen in three type III strains isolated from the stools of 2 individuals. This increase was so slight that only doses of 10^7 TDC_{50} or higher proved to be paralytogenic or intracerebral inoculation. This increased neurotropism was demonstrable only in strains isolated 15, 16 and 21 days after feeding, whereas strains of the same type isolated from the same individual either earlier or later did not show any increase of neurotropism. This indicates that the alimentary tract does not selectively favor the development of neurotropic virus particles. So far there seems to be no reason to assume that this method of vaccination might lead to the circulation of virus with a high neurotropic activity. (Author)

Vesin, P., Paolaggi, J. and others.
IDIOPATHIC HYPOPROTEINEMIA WITH HYPO-GAMMA-GLOBULINEMIA. NORMO-ALDOSTERONIC EDEMA. POLYCYTHEMIA (Hypoproteinémie Idiopathique avec Hypo-Gamma-Globulinémie. Oedèmes Normo-Aldostéroniques. Polyglobulie) tr. by P. Hajdu. 28 May 59, 13p. 17 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-16642

Trans. of Société Médicale des Hôpitaux de Paris. Bulletins et Memoires (France) 1958, ser. 4, v. 74, no. 13/14, p. 308-319.

Vet, A. C. de.
HYPOTHALAMIC LESION WITH HYPOTHERMIA AND EXTENSIVE ENDOCRINE DYSFUNCTION (Hypothalamus-Laesie met Hypothermie en Uitgebreide Endrocrine Dysfunctie) tr. by P. Pallamary. 23 Mar 59, 14p.
Order from LC or SLA mi$2.40, ph$3.30 59-14549

Trans. of Nederlands Tijdschrift voor Geneeskunde, 1952, v. 96, pt. 3, p. 1842-1846.

A case history.

Wissler, H.
PAROXYSMAL MYOGLOBINURIA, tr. by Tatiana Boldyreff. 7 Apr 59, 6p.
Order from LC or SLA mi$1.80, ph$1.80 59-14876

Trans. of Helvetica Paediatrica Acta (Switzerland) 1948, v. 4, p. 334-337.

Pharmacology and Toxicology

PHARMACOLOGY AND TOXICOLOGY, 1959, VOL. 22, NO. 1, P. 1-95. 1960, 1v.
Order from CB $10.00, $25.00/year

Trans. of Farmakologiya i Toksikologiya (USSR) 1959, v. 22, no. 1, p. 3-[94].

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 1 (Soviet Abstracts. Biology). 19 Mar 60, 55p. JPRS: 2399.
Order from OTS $1.00 60-11411

Contents:
Section V. Pharmacology and Toxicology. Abstracts 4380-4766.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Jacquot, Raymond and Calet, Claude.
INFLUENCE OF CHLORTETRACYCLINE ON THE BODY COMPOSITION OF THE WHITE RAT. [1959] [5]p.
Order from SLA mi$1.80, ph$1.80 60-14089

Trans. from European Symposium on Antibiotics, 1-4, May 1953.

Maier, R., Gross, F., and Tripod, J.
RITALIN, A NEW KIND OF SYNTHETIC COMPOUND WITH SPECIFIC CENTRALLY EXCITING EFFECTIVE COMPONENTS. [1959] 20p. (6 figs. omitted) 13 refs.
Order from SLA mi$2.40, ph$3.30 60-14086

Trans. of unidentified mono. pub. by the Ciba Co., Basel, n.d.

Romanovskiy, I.
THE TRAINING OF SOLDIERS FOR DEFENSE AGAINST CHEMICAL WARFARE. 9 Mar 60, 7p. JPRS: 3045.
Order from OTS $0.50 60-31083

Trans. of Voyennyy Vestnik (USSR) 1959 [v. 39] no. 12, p. 57-61.

Trostyanskaya, Ye. B., Tevlina, A. S. and others.
PROPERTIES OF CERTAIN CATION EXCHANGE RESINS AND THEIR POSSIBLE APPLICATIONS IN THE MEDICAL AND FOOD INDUSTRIES [AND] PROPERTIES OF CERTAIN ANION EXCHANGE RESINS AND THEIR POSSIBLE APPLICATION IN MEDICINE AND IN THE FOOD INDUSTRY. 22 Jan 60, 24p. (10 figs. omitted) 14 refs. JPRS: L-921-D.
Order from OTS $0.75 59-11608

Trans. of mono. Issledovaniya v Oblasti Ionoobmennoy Khromatografii (Investigations in the Field of Ion Exchange Chromatography) Moscow, 1957, p. 117-126.

Radiobiology

Beger, Horst.
X-RAY TUBE FOR MAKING STEREOSCOPIC PHOTOGRAPHS OR FOR OBTAINING X-RAYS WITH STEREOSCOPIC EFFECT, tr. by C. P. 25 Feb 60, 3p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15550

Trans. of German patent 875975, cl. 21 g, gr. 17-10, pat. 1 Aug 41, appl. announced 31 July 52, pat. allowance announced 26 Mar 53, pub. 7 May 53 (period from 8 May 45 to 7 May 50 not counted in life of patent, law of 15 July 51) by Koch & Sterzel Aktiengesellschaft, Dusseldorf.

The tube is characterized in that it contains two incandescent cathodes and an anode rotating during the operation in such an arrangement that two focal spots will be formed on the anode at a distance apart from one another suited for stereoscopic photographs and/or X-ray photographs. The two incandescent cathodes are located in the empty space of the pot forming the anode on the inside wall of which constructed as a frustum-shaped jacket the two focal spots are produced. Each of the two incandescent cathodes has allotted to it a special electron impact surface on the anode.

Bekkum, D. W. van.
HOMOLOGOUS AND HETEROLOGOUS GRAFTS OF THE HEMATOPOIETIC SYSTEM (L'Homo et l'hétéro-Greffe du Système Hématopoiétique) tr. by P. Hajdu. 31 July 59, 55p. (11 figs. omitted) 6 refs.
Order from LC or SLA mi$3.60, ph$9.30 59-18798

Trans. of Semaine des Hôpitaux (France) 1958, v. 34, no. 13/14, p. 1083-1104 [Pathologie et Biologie (France) 1958, v. 6, no. 13/14, p. 1083-1104].

Butomo, N. V.
CHANGES IN PERMEABILITY OF VASCULAR BARRIERS FOLLOWING THE ACTION OF IONIZING RADIATION ON THE ORGANISM. 23 Feb 60, 9p. 28 refs. JPRS: 2255.
Order from OTS $0.50 60-11295

Trans. of Meditsinskaya Radiologiya (USSR) 1959, v. 4, no. 10, p. 9-13.

Gubina, G. P. and Omel'yanenko, L. M.
SOME DATA ON ECHINOPSIN ALKALOID TREATMENT OF PATIENTS FOR CHRONIC RADIATION SICKNESS. 11 Feb 60, 11p. JPRS: 2223.
Order from OTS $0.50 60-11272

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1959, v. 34, no. 5, p. 29-33.

A preparation of echinopsin is recommended for the treatment of patients with chronic radiation sickness. Indications for the use of echinopsin are forms of chronic radiation sickness: (a) with marked asthenic syndromes: (b) with the astheno-adynamic syndromes; (c) with the astheno-depressive syndromes. In chronic radiation sickness with organic damage to the central nervous system, echinopsin may be used only under conditions of hospitalization of the patients and strict supervision by a physician; the dose depends on the individual tolerance to the medication. Treatment should be initiated with small doses. With the development of neurologic disturbances in patients with chronic radiation sickness, echinopsin alkaloid facilitates a rather quick restoration of the disturbed nervous system, especially of its sensory functions. Treatment with echinopsin excludes the use of preparations possessing a general stimulatory action, because of the possibility of overstimulation of the nervous system. Poor tolerance to echinopsin is possible in patients with marked manifestations of hyperthyroidism and in patients with angiospastic crises in which there is a predominance of overstimulation of the central nervous system (possibly at the diencephalic level). Treatment with echinopsin may be combined with treatment which includes vitamins (C, P, K) and preparations causing stimulation of hematopoiesis. (Author)

Hajdukovic, S. and Stosie, Lj.
INFLUENCE OF X-RAYS ON THE RETICULOCYTE REACTION OF YOUNG RATS. 10 Sep 58, 10p. 21 refs. JPRS(DC)-L-672.
Order from OTS $0.50 PB 141 162T

Trans. of Vojnosanitetski Pregled (Yugoslavia) 1957, [v. 14] no. 9, p. 279-283.

Kalashnikov, A. I., Samoletov, A. I. and others.
EXPERIMENT WITH SMALL DOSES OF RADIOACTIVE RADIATION IN THE INCUBATION OF CHICKS (Opyt Ispol'zovaniya Malykh doz Radioaktivnykh Izluchenii pri Inkubatsii). [1959] 9p. (summaries omitted). Trans. A-1092.
Order from LC or SLA mi$1.80, ph$1.80 60-15352

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 8, p. 47-50.

Khomutovskiy, O. A.
ELIMINATION OF RADIOACTIVE STRONTIUM FROM THE ORGANISM UNDER THE INFLUENCE OF CERTAIN COMPLEX-FORMING COMPOUNDS. 16 Feb 60, 15p. 11 refs. JPRS: 2256.
Order from OTS $0.50 60-11275

Trans. of Fiziologichnyy Zhurnal (USSR) 1959, v. 5, no. 5, p. 670-678.

The process of excreting Sr^{89} after oral administration was investigated in 24 rats, and its distribution in the organs and tissues in 44 rats. Observations of the excretion of the isotope were continued for five

days. The absorption of the sodium salt of radioactive strontium from the gastrointestinal tract was 54 to 58 percent of the administered dose. The maximum content of the isotope in the soft tissues was reached in two hours, and in the bones in eight hours. The total amount of Sr^{89} in the osseous tissue upon giving the isotope orally was two times, and in the soft tissues ten times, less than with intraperitoneal administration. With oral administration of Sr^{89} to rats, 60 to 76 percent of the administered dose is excreted in five days in the urine and feces, which is twice as much as when it is given intraperitoneally. Prevention of absorption of Sr^{89} from the gastrointestinal tract during the course of the first two hours may be achieved with the use of substances which combine with Sr^{89} to form insoluble compounds. With the administration of oxalic acid orally in doses of 0.15 to 0.18 mg per gm body weight within an hour after the oral administration of Sr^{89}, the content of the isotope in the femoral bones of experimental rats is only half that found in control rats.

Mellink, J. H.
THE USE OF CO^{60} AND CS^{137} IN TELECURIE THERAPY. 22 Jan 60, 41p. (6 figs. omitted) 22 refs. JPRS: L-1022-D.
Order from OTS $1.25 59-11633

Trans. of Atompraxis (West Germany) 1958, v. 4, no. 6, p. 212-227.

Wang, Shao-hsun.
COMMUNIST CHINA'S ACHIEVEMENT IN CLINICAL RADIOLOGY DURING THE PAST DECADE. 23 Feb 60, 34p. JPRS: 2282.
Order from OTS $1.00 60-11322

Trans. of Chung Hua Fang She Hsüeh Tsa Chih (Chinese People's Republic) 1959, v. 7, no. 5, p. 317-326.

Wang, Shih-chen and Yeh, Ken-yao.
PROGRESS IN THE USE OF RADIOISOTOPES IN THE FIELD OF MEDICINE SINCE LIBERATION. 23 Feb 60, 26p. 11 refs. JPRS: 2280.
Order from OTS $0.75 60-11321

Trans. of Chung Hua Fang She Hsüeh Tsa Chih (Chinese People's Republic) 1959, v. 7, no. 5, p. 327-333.

Zuikova, Ye. Z., Chaykovskaya, M. Ya., and Petrosyan, S. L.
THE EFFECT OF IONIZING RADIATION ON PROGENY FOLLOWING IRRADIATION OF ANIMALS DURING THE LAST DAYS OF PREGNANCY. 11 Feb 60, 12p. 11 refs. JPRS: 2224.
Order from OTS $0.50 60-11273

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1959, v. 34, no. 5, p. 34-41.

Zoology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) (Soviet Abstracts. Biology).
Order from OTS $1.00

Contents:
Section G. Zooparasitology. Abstracts 62573-62707.
1958, no. 14, Abstracts 62573-62707, JPRS: 2336, 60-11361
1959, no. 2, Abstracts 5668-5760, JPRS: 2345, 60-11368

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Balashov, Yu. S.
NUTRITION AND COURSE OF SPERMATOGENESIS ON MALE IXODID TICKS. [1959] 5p. (4 figs. omitted) 8 refs. Trans. 21(T21).
Order from LC or SLA mi$1.80, ph$1.80 60-10997

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1956, v. 110, no. 6, p. 1133-1136.

Balashov, Yu. S.
PECULIARITIES OF THE DAILY RHYTHM OF DROPPING OF ENGORGED FEMALE IXODES PERSULCATUS FROM CATTLE (Osobennosti Sutochnogo Ritma Otpadeniya Nasosavshikhsia Samok Ixodes persulcatus s Korov), [1959] [5]p. 3 refs. Trans. 20(T20).
Order from LC or SLA mi$1.80, ph$1.80 60-10998

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1954, v. 98, no. 2, p. 317-319.
Another translation is available from SLA as RT-3736.

Gusev, A. V.
EXPEDITION TO THE LIAO HO. 16 Feb 60, 6p. JPRS: 2265.
Order from OTS $0.50 60-11292

Trans. of Akademiya Nauk SSSR. Vestnik, 1959 [v. 29] no. 9, p. 87-89.

Kheysin, E. M. and Lavrenenko, L. E.
DURATION OF BLOOD-SUCKING AND DIURNAL RHYTHM OF NUTRITION AND DROPPING OF FEMALES OF IXODES RICINUS L. [1960] 9p. 15 refs. Trans. 24 (T24).
Order from LC or SLA mi$1.80, ph$1.80 60-14036

Trans. of Zool[ogicheskiy] Zh[urnal] (USSR) 1956, v. 35, no. 3, p. 379-383.

Observations showed that dropping of engorged females of Ixodes ricinus from the host occurs only

in the pasture. During normal practice of the host (rest during the night), the ticks drop off during the day but during reverse practice of the host (rest during the day), the ticks drop during the night. Dropping of engorged females is connected with the movement of the animal and begins a few hours after the animals were driven to pasture. During rest of the host in the cattle-yard, the ticks, as a rule, do not drop off. Dropping of completely engorged females may be delayed for as many days as the cows remain in the cattle-yard, i.e., in a state of rest. Dropping of females occurs on the 7th to 8th day (each day 24 hours) after attachment. During normal diurnal routine of the host, the engorged females, ready to drop in the morning before the animals are driven off to pasture, is constantly observed. This is connected with the rhythm of nutrition of the tick. In 6 days of bloodsucking, the weight of female ticks increased 55, 5 mg. and in the last night of intensive bloodsucking the weight of the tick increased on an average up to 200 mg.; that is why females reach maximum weight in the morning.

Kobayashi, Tetsuo and Abe, Shin-ichi.
ON THE IDENTIFICATION OF CHUM SALMON STOCKS IN THE NORTH PACIFIC BY MEANS OF SCALES (PT. I) tr. by Hack Chin Kim. 17 Oct 58 [35]p. (11 figs. omitted) 22 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-18361

Trans. of I[nternational] N[orth] P[acific] F[isheries] C[ommission] Doc[ument] 207, Hokkaido, Aug 58, 36p.

The problem of the race and stocks of chum salmon in the North Pacific is discussed on the basis of the age-composition of the fish in 1955 and 1956 in offshore areas, Alaska inshore areas and rivers, and on the basis of the scale types of the 4-year-old and 5-year-old fish. (See also 60-15538)

Kuipers, H.
LOCALIZATION OF GLYCOGEN IN THE FIRST DEVELOPMENTAL STAGES OF AMBYSTOMA MEXICANUM (Over de Localisatie van het Glycogeen in de Eerste Ontwikkelingsstadia van Amblystoma Mexicanum) tr. by P. Pallamary. 27 Feb 59, 8p. 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-14239

Trans. of Nederlands Tijdschrift voor Geneeskunde, 1930, v. 74, p. 1156-1158.

A lecture.

Luh, Pao-Ling and Woo, Wei-Chu.
A LIST OF CHINESE TICKS. [1960] 29p. 122 refs. Trans. 19(T19).
Order from LC or SLA mi$2.70, ph$4.80 60-14034

Trans. of [K'un Ch'ung Hsueh Pao] (Chinese People's Republic) 1950, v. 1, no. 2, p. 195-222.

Serdyukova, G. V.
ON THE QUESTION OF DIFFERENTIAL CHARACTERISTICS OF LARVAE AND NYMPHS OF IXODIDAE, tr. by Alena Elbl. [1960] [15]p. (20 figs. omitted) 19 refs. Trans. 18 (T18).
Order from LC or SLA mi$2.40, ph$3.30 60-14037

Trans. of Zool[ogicheskiy] Zhurnal (USSR) 1955, v. 34, no. 5, p. 1037-1051.

Yokogawa, Muneo, Oshima, Tomoo and Kihata, Michie.
STUDIES TO MAINTAIN EXCYSTED METACERCARIAE OF PARAGONIMUS WESTERMANI IN VITRO. I. SURVIVAL PERIOD OF EXCYSTED METACERCARIAE IN VITRO, tr. by W. Himel. 4 Mar 59, 17p. (4 figs. omitted) 15 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-14279

Trans. of Kiseichugaku Zasshi (Japan) 1955, v. 4, no. 4, p. 388-393.

Three excysted metacercariae of Paragonimus westermani were maintained in vitro for 202 days. From an average length of about 0.6 mm and a width of 0.26 mm at rest immediately after excystation, these forms had grown to 2.5 or 3.0 mm in length and 1.5 to 2.0 mm in width at rest; stretched, they reached up to 6 or 7 mm long. Signs of beginning development of the male reproductive system, especially of the testes, are being observed. Some 107 excysted metacercariae were used to start the cultures. Carrel flasks were employed, and the cultures were incubated at 37° C and kept as sterile as possible by including the use of antibiotics. The medium used for the first three weeks after excystation consisted of equal parts of cat serum and Tyrode's solution. Chick Embryo Extract and cat blood cells were added to the medium of one-third of the cultures, and cat blood cells only were added to another third of the cultures after that time. All of the larvae in the media without both blood cells and C. E. E. died within 4 weeks, but none of the worms in the media with both cat blood cells and C. E. E. and in the media with blood cells only died. The red blood cells and C. E. E. seem to be the important requirements for maintaining the larvae. It was observed that the red blood cells were ingested and that the digested red blood cells were excreted. (Author) (See also 59-14242)

CHEMISTRY

*AKADEMIYA NAUK SSSR. OTDELENIYE KHIMICHESKIKH NAUK. IZVESTIYA, 1959 (News of the Academy of Sciences of the USSR, Department of Chemical Sciences). [1960]
Order from OTS $0.70, $4.00/6 mo.
Foreign $0.95, $5.50/6 mo.

No. 10, p. 1699-1870, PB 141 055T-24
No. 11, p. 1875-2063, PB 141 055T-23

Consists of abstracts in English.

REFERATIVNYY ZHURNAL. KHIMIYA (USSR) 1959, (Soviet Abstracts. Chemistry).
Order from OTS $3.50

No. 19, abstracts 67005-70193, JPRS: 2406, 60-11414
No. 21, abstracts 73808-77261, JPRS: 2409, 60-11417

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia, excluding the USSR.

*ZHURNAL OBSHCHEY KHIMII (USSR) 1959, V. 29, NO. 12, P. 3857-4099 (Journal of General Chemistry). [1960] 1v. SOV-79-29-12-(1-55)/55.
Order from OTS $1.40, $7.50/6 mo. PB 141 075T-25
Foreign $1.65, $9.00/6 mo.

Consists of abstracts in English.

Berlin, A. A., Makarova, T. A., and Rodyonova, E. F.
METHODS OF PREPARATION OF RESIN COMPOSITIONS. [1959] 2p.
Order from ATS $5.00 ATS-72M37R

Trans. of Russian patent 123,311, cl. 39b, 401. 22i, 2, filed 9 Aug 50 under no. 425,885/23.

Yakhontov, L. N., Kolpakhova, V. V. and others.
ON SCIENTIFIC RESEARCH WORK IN THE INSTITUTES OF THE REPUBLIC OF CZECHOSLOVAKIA [PT. 1]. 8 Feb 60, 8p. JPRS: 2218-N.
Order from OTS $0.50 60-11266

Trans. of Meditsinskaya Promyshlennost' SSSR, 1959, v. 13, no. 11, p. 55-58.

Analytical Chemistry

*ZHURNAL ANALITICHESKOY KHIMII (USSR) 1959, V. 14, NO. 6, P. 643-750 (Journal of Analytical Chemistry). [1960] 1v. SOV-75-14-6-(1-25)/25.
Order from OTS $0.90, $5.25/year PB 141 071T-12
Foreign $1.15, $6.75/year

Consists of abstracts in English.

Bemmann, R[udolf].
REMOVING OIL FROM PHENOSOLVAN EXTRACTS; THE PRINCIPLE OF THE SODA PROCESS. [1959] 11p. (1 fig. omitted).
Order from SLA mi$2.40, ph$3.30 60-10788

Partial trans. (p. 98-104) of Freiberger Forschungshefte. [Reihe] A. [Bergbau] (West Germany) 1956, no. 51, Oct, p. 89-108.

Farina, M., Donati, M., and Ragazzini, M.
POTENTIOMETRIC ANALYSES OF ALKYL ALUMINUM COMPOUNDS. [1959] [12]p. 5 refs.
Order from SLA mi$2.40, ph$3.30 60-14148

Trans. of Ann[ali di] Chim[ica] (Italy) 1958, v. 48 [no. 6/7] p. 501-509.

The scientific and practical interest shown recently in the aluminum alkyl compounds, because of their utilization as components of polymerization catalysts, has given rise to a real problem with respect to the accurate analysis of such compounds. In the present work we are reporting a potentiometric method of titration based on the addition of ethers and substituted amines, in particular isoquinoline. This method combines remarkable precision in analysis with relative facility of operation. Examined is the behavior of the various substances normally present, in addition to the aluminum trialkyls such as the mono-alcoholates, the mono- and dihalides, the monohydrides and the aluminum alkyl etherates. In addition there is determination of the effect, on titration, of the moisture contained in the solvents and in their reagents. (Author)

Fedorov, B. P. and Gorushkina, G. I.
THE SIMULTANEOUS DETERMINATION OF THIOPHENE OR ITS SIMPLEST HOMOLOGS IN MIXTURES WITH UNSATURATED HYDROCARBONS. [1959] 10p.
Order from ATS $14.95 ATS-00M38R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv [i Masel] (USSR) 1956 [v. 1] no. 12, p. 5-12.

Fuchs, O.
THE FRACTIONATION OF HIGH POLYMERS BY A SOLUTION PROCESS. [1959] 14p. 8 refs.
Order from SLA mi$2.40, ph$3.30 60-14122

Trans. of Makromolekulare Chemie (Switzerland) 1952, v. 7, p. 259-270.

Fuchs, O.
A METHOD OF FRACTIONATING HIGH POLYMERS. [1959] 10p. (1 table 2 figs. omitted) 3 refs.
Order from SLA mi$1.80, ph$1.80 60-14121

Partial trans. (p. 248-55) of Makromolekulare Chemie (Switzerland) 1951, v. 5 [p. 245-256].

Istomina, K. Ye.
COMPARATIVE EVALUATION OF METHODS OF DETERMINING OIL IN WATER AND CONDENSATE. [1960] 7p.
Order from ATS $11.95 ATS-24L31R

Trans. of Gosudarst[vennyy] Nauch[no]-Issledovatel-['skiy] i Proyekt[nyy] Inst[itut] Azotnoy Prom[yshlennosti]. Trudy (USSR) 1957, no. 8, p. 248-254.

Lavrovskaya, G. K., Skurat, V. E. and others.
THE APPLICATION OF MASS SPECTROSCOPY TO CHEMICAL ANALYSIS. [1959] 17p.
Order from ATS $28.25 ATS-21L37R

Trans. of Khim[icheskaya] Nauka i Prom[yshlennost'] (USSR) 1959, v. 4, no. 2, p. 154-163.

Nasini, A. and Mussa, C.
FRACTIONATION OF HIGH PRESSURE POLYETHYLENES. [1959] 34p. (9 figs. omitted) 23 refs.
Order from SLA mi$3.00, ph$6.30 60-14117

Trans. of Makromolekulare Chemie (Switzerland) [1957, v. 22, p. 59-80].

Schäfer, Hans-Georg.
CONTRIBUTIONS TO THE KNOWLEDGE OF COAL-TAR PITCH. [1959] 55p. (12 figs. omitted) 62 refs.
Order from LC or SLA mi$3.60, ph$9.30 59-22341

Trans. of Freiberger Forschungshefte. Reihe A. [Bergbau] (West Germany) 1956, no. 51, p. 35-65.

A survey lecture.

Stolyarov, K. P.
IODIMETRY IN ULTRA-VIOLET LIGHT (Iodometriya v Ul'trafioletovykh Luchakh) tr. by E. Feigl. [1959] [21]p. 8 refs. Trans. no. 4273.
Order from LC or SLA mi$2.70, ph$4.80 60-15381

Trans. of Leningrad U. Uchenyye Zapiski (USSR) 1957, no. 211, p. 92-[103] Seriya Khimicheskikh Nauk no. 15.

Methods are suggested for determining the end point without the use of an indicator (starch) in (1) iodimetric titrations of iodine, iodates, bromates, sulphites, thiosulphates, hydrogen peroxide, strong mineral acids and oxalic acid in ultra-violet light, and (2) iodimetric determinations of arsenic, chromium, iron, copper, barium and lead in ultra-violet light. It is shown that sodium thiosulphate may, in several iodimetric determinations, be conveniently replaced by ascorbic acid for titrating iodine.

Organic Chemistry

PROCESS FOR MANUFACTURING VINYL CHLORIDE-ACRYLONITRILE COPOLYMERS OF HIGH SOFTENING POINTS. Feb 60, 5p.
Order from RIS $6.75 RIS rept. 6412

Trans. of German patent application C 11 630 (39c, 25/01) DAS 1 002 526, filed 30 July 55, pub. 14 Feb 57, by Chemische Werke Huels A. G., Marl.

A process for manufacturing copolymers from vinyl chloride and acrylonitrile of high softening point is described, which is characterized in that 50 to 70% of the monomeric vinyl chloride is polymerized first, then monomeric acrylonitrile is added in amounts of 18 to 25% relative to total monomer, and the polymerization is carried to completion.

PROCESS FOR MULTISTAGE CURING OF EPOXY RESINS. Feb 60, 6p. 1 ref.
Order from RIS $10.00 RIS rept. 61062

Trans. of German patent application V 13 720 (39 b, 22/10) [DAS] 1 054 705, filed 20 Jan 58, appl. pub. 9 Apr 59, pat. pub. 24 Sep 59, by VEB Leuna-Werke "Walter Ulbricht", Leuna.

A process is described for curing epoxy resins, in several stages if necessary, with acid or neutral, possibly polymeric, esters of aliphatic and cycloaliphatic monovalent and multivalent alcohols and polybasic carboxylic acids in the presence of metal oxides with heating. The process is characterized in that the metal oxides used are such as have several valencies and have not attained to the higher degree of oxidation, with the condition that the ions of the metals of both oxidation stages must form a positive redox potential of over 1 volt. The melt of a solid epoxy resin is heated with the mixture formed during heating of the ester and the metal oxide.

PROCESS FOR PRODUCING POLYESTERS OF POLYBASIC CARBOXYLIC ACIDS. Feb 60, 8p.
Order from RIS $14.00 RIS rept. 61063

Trans. of German patent application B 34 505 (39 c, 16) DAS 1 055 812, filed 14 Feb 55, pub. 23 Apr 59, by Bergwerksverband G. m. b. H., Essen-Kray.

A process is described for producing polyesters from tribasic and higher basic carboxylic acids, especially pyromellitic acid, its mixtures or anhydrides. The process is characterized in that these are partially esterified with at least one monovalent alcohol in a conventional manner and the resulting acid ester converted in conventional manner with epoxy compounds, possibly with the condensation into the product of monovalent or divalent carboxylic acids. Carboxylic acid mixtures are used, which are obtained from the oxidation of solid fuels with nitric acid at elevated pressure.

PROCESS FOR PRODUCING SHOCK RESISTANT POLYSTRENE. Feb 60, 9p.
Order from RIS $19.50 RIS rept. 61061

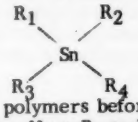
Trans. of German patent application C 16 481 (39c, 25/01) DAS 1 059 179, filed 14 Mar 58, pub. 11 June 11 June 59, by Chemische Werke Huels A. G., Marl.

A process is described for producing shock resistant polystyrene through suspension polymerization of solutions of rubber in styrene in the absence of oxygen. The process is characterized in that water soluble organic colloids are used as suspension agents.

PROCESS FOR STABILIZING VINYL CHLORIDE AND VINYLIDENE CHLORIDE POLYMERS. Feb 60, 7p.
Order from RIS $13.00 RIS rept. 6114

Trans. of German patent application F 5384 (39b, 22/06) filed 10 Jan 51, pub. 23 Oct 52, by Farbwerke Hoechst A. G., Frankfurt-Hoechst.

A process is described for preparing heat and light-resistant polymers of halogen-containing ethylene derivatives, vinyl esters, or copolymers of these or with other monomers. The process is characterized in that organic tin compounds having the structure



are added to the polymers before, during or after their preparation. Here R_1 and R_2 represent aryl or alkyl residues, and R_3 and R_4 represent residues of this type of which at least one exercises a stabilizing effect itself or in the form of a salt.

Adrova, N. A., Koton, M. M. and others.
THE RELATION BETWEEN THE CHEMICAL STRUCTURE OF CARBOCYCLIC AND HETEROCYCLIC COMPOUNDS AND THEIR SCINTILLATING ACTIVITY (O Svyazi Mezhdu Khimicheskim Stroyeniyem Karbo- i Geterotsiklicheskikh Soyedinenii i Ikh Stsintillyatsionnoy Aktivnostyu).
Apr 58, 5p. 19 refs. C. T. S. no. 451.
Order from LC or SLA mi$1.80, ph$1.80 60-13047

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 114, no. 2, p. 311-313.

The scintillating activity of substituted anthracenes, polyphenols, aryl derivatives of dienes, and a series of heterocyclic compounds (69 compounds in all) was studied after introducing them into a plastic mass (polystyrene). These substances were introduced into styrene monomer in amounts corresponding to their maximum efficiency (1 or 2 wt percent) and the styrene was polymerized in presence of 0.2 percent of benzoyl peroxide with gradual raising of the temperature from 80 to 120° in the course of 4 or 5 days until transparent solid blocks were obtained. The latter were shaped into cylindrical form. These cylinders were examined for scintillating efficiency in an apparatus for determination of the relative magnitude of the voltage peak at the output side of a photoelectron multiplier (FEU - 19). The peak of a standard sample (2 percent of terphenyl in polystyrene was taken to be 100 percent when the counting level was 1000 pulses/min. The compounds possessing the highest activity in plastics were 1, 4-di- [2-(5-phenyloxazolyl)-benzene], quaterphenyl, and 9, 10-diphenylanthracene, i.e., hydrocarbons whose molecules contain 4 or 5 rings and conjugated double bonds. In a series of oxazoles and oxadiazoles possessing a high scintillating activity, the latter depends to a considerable degree upon the nature of the substituent in the 2, 5-position. With identical substituents (phenyl), derivatives of oxazoles possess a higher scintillating activity than derivatives of oxadiazoles. These data are in close harmony with those of Hayes et al. (Nucleonics 13: 38, 1955 and 14: 42, 1956) which were obtained in a study of liquid scintillators. There is similarly a relation between the chemical structure and the scintillating activity of a group of hydrocarbons with three condensed nuclei and differing from one another in respect of ring structure, number of conjugations and presence of various heterocycles (O, S, NH). Anthracene is more active than phenanthrene, and acenaphthene; dibenzofuran more active than dibenzothiophene, and dibenzopyrrole. These results are in agreement with those of Sangster and Irvine (Phys. Rev. 83: 241, 1951 and J. Chem. Phys. 24: 670, 1956), which were based on a study of the scintillating efficiency of these substances in the crystalline state.

Andreyev, L. N., Krentsel', B. A. and others.
THE USE OF RADIATION TO PREPARE AN ACRYLONITRILE-PROPYLENE COPOLYMER.
[1959] 1p.
Order from ATS $2.00 ATS-94M37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 8, p. 1507.

Borisov, A. E. and Novikova, N. V.
EXCHANGE REACTION OF ORGANOTIN COMPOUNDS WITH THALLIUM TRICHLORIDE. [1959] 4p.
Order from ATS $6.00 ATS-38M38R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 9, p. 1670-1672.

Previous investigations are continued by studying the reaction between tetraethyl-, butyl-, phenyl-, o- and p-tolyl-, o-anisyl, the stereoisomeric propenyl-, isopropenyl-, and vinyl compounds of tin with thallium (III) chloride. The initial substances were obtained by the Grignard reaction, stereoisomeric tetrapropenyl- and isotetrapropenyl tin being prepared for the first time. All compounds reacted smoothly with $TlCl_3$ in ether or chloroform solution at room temperature. Initial substances and reaction products are tabulated. The cis- and trans-tetrapropenyl compounds immediately form R_2TlCl, the others form mixtures of R_2TlCl and $RTlCl_2$. The phenyl compounds yield compounds of the latter type only. The tetraethyl and tetrabutyl compounds gave no exchange reaction. Only compounds of the type $Tl_3(TlCl_6)$, as well as ethyltin chloride and butyltin chloride were precipitated. The physical constants of some of the thallium compounds obtained are tabulated. (See also 59-18920, 60-10987)

Braz, G. I. and Gortinskaya, T. V.
ACRIDYL-9-(ω-HALOGENMETHYLKETONES) tr. by P. V. DeForte. 10 Dec 59, 17p. (formulae omitted) 28 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-13138

Trans. of Zhurnal Obshchey Khimii (USSR) 1940, v. 10 [no. 19/20] p. 1751-1756.
Another translation is available from SLA as RT-1378.

Bredereck, Hellmut; Gompper, Rudolf and others.
FORMAMIDE REACTIONS. XIV. REACTIONS OF ACID AMIDE ACYLHALOGENIDE ADDUCTS; THE PRODUCTION OF SUBSTITUTED AMIDINES AND AMIDE RACONES. [1959] 21p. (6 formulas 1 graph omitted) 21 refs.
Order from SLA mi$2.70, ph$4.80 60-14070

Trans. of Chem[ische] Ber[ichte] (West Germany) 1959, v. 92 [no. 4] p. 837-849.
Another translation is available from ATS $20.95 as ATS-66L33G [1959] 15p. and a partial translation from SLA mi$2.40, ph$3.30 as 59-17498 [1959] [14]p.

The structure of the dimethylformamide phosphoroxychloride adduct, which is obtained in crystalline form, is discussed. N, N-disubstituted amides give N, N, N'-trisubstituted amidines with phosphoroxychloride and amines. The reaction of the dimethylformamide phosphoroxychloride adduct with hydrazines leads to the previously unknown formyl formamidazones. N, N'-disubstituted formamidines are produced through reaction of formanilides with alkylating agents. (Author)

D'yachkovskiy, F. S., Bubnov, N. N., and Shilov, A. Ye.
STUDY OF THE RECOMBINATION KINETICS OF TRIPHENYLMETHYL RADICALS BY MEANS OF ELECTRON PARAMAGNETIC RESONANCE [Izucheniye Kinetiki Rekombinatsii Trifenilmetil'nykh Radikalov Metodom Elektronnogo Paramagnitnogo Rezonansa] [1959] [3]p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-10907

Trans. of Akad[emiya] Nauk SSSR. Doklady 1958, v. 122, no. 4, p. 629-631.
Another translation is available from CB.

As a result of direct determination of the dimerization rate of triphenylmethyl radicals, the presence of an activation energy in this reaction was confirmed, its value coinciding with the difference between the activation energy of dissociation and the energy of breaking of bond C-C in hexaphenylethane.

Grachev, I. V.
TO THE PROBLEM OF THE STRUCTURE AND TRANSFORMATIONS OF DIAZO COMPOUNDS. II. ON THE VARIOUS FORMS OF p-NITRODIAZOBENZENE. [1959] [12]p. 11 refs. M 184.
Order from LC or SLA mi$2.40, ph$3.30 59-19078

Trans. of unidentified Russian mono. from the Institute of Applied Chemistry.

The existence of the following salts of p-nitrodiazobenzene has been shown: diazonium chloride, the sodium salts of the diazotate and nitrosamine, and, for the first time, of the diazonium salts of the same acids. The hitherto unknown dissociation constant, and the constants and degrees of hydrolysis of some of the structures of p-nitrodiazobenzene have been determined. In agreement with the data found in the literature, p-nitrophenylnitrosamine is found to be an acid of considerably greater strength than the diazotate. Of all the salts studied by us the greatest extent of hydrolysis is shown by the diazonium diazotate, which forms the amphoteric, weakly dissociated diazohydroxide. Hydrolysis of p-nitrophenyldiazonium chloride with the formation of diazonium diazotate and further to the diazohydroxide is slight, although this diazocompound is known to be active in the coupling reaction (hence, contrary to present opinion, the activity in the coupling reaction cannot be a measure of the degree of hydrolysis of the diazonium chloride). The change in the quantitative ratios of the various forms of diazocompound with the pH value of the medium was determined. In the range of pH 8-9 the concentration of the p-nitrophenyldiazonium cation rapidly decreases (by a factor of 40), though even in the alkaline region a definite, though small, quantity of this form remains owing to the hydrolysis of sodium diazotate. (Author) (See also 59-19072)

Hosaka, Yoshinobu and Takehisa, Masaaki.
EFFECTS OF REACTION CONDITIONS UPON THE DIPHENYL SYNTHESIS FROM BENZENE UNDER ADDED PRESSURE. Rept. 1 of Study on the Diphenyl Synthesis from Benzene under Added Pressure. [1960] [12]p. 8 refs.
Order from SLA mi$2.40, ph$3.30 60-14142

Trans. of Kogyo Kagaku Zasshi (Japan) 1955, v. 58, no. 12, p. 1001-1004.

Experiments showed that the conversion rates of benzene to diphenyl and triphenyl decrease in proportion to the minus 0.7th to minus 0.3rd power of the space velocity and the minus first power of the space velocity. The reaction speed is in proportion to the second power of the reaction pressure; and the main reaction is a secondary uniform system reaction. For the same conversion rates of benzene, the rates of conversion of benzene to diphenyl and triphenyl are the same irrespective of the temperature for the reaction. It is also possible to lower the temperature for reaction by approximately 100 degrees centigrade as compared with the normal pressure method. There are two kinds of educed carbon, each having its own reason for coming into existence; one is soot-like carbon and the other is pitch-like carbon, and it is possible to decrease the amount of the soot-like carbon produced by the contact decomposition of benzene under the added pressure method. A lecture given to the 7th annual meeting of the Chemical Society of Japan in April, 1954.

Khalizova, O. D. and Vorontsova, E. I.
SOME PROPERTIES OF DICHLORODIFLUOROMETHANE (FREON 12) AND A METHOD OF ITS DETERMINATION. [1959] 5p.
Order from ATS $8.50 ATS-13M38R

Trans. of Gigiyena i Sanit[ariya] (USSR) 1952, v. 17, no. 4, p. 44-46.

Khomyakov, V. G., Fioshin, M. Ya., and Kruglikov, S. S.
ELECTROCHEMICAL SYNTHESIS OF ORGANIC SUBSTANCES. [1959] 15p.
Order from ATS $19.85 ATS-92M37R

Trans. of Khim[icheskaya] Nauki i Prom[yshlennost'] (USSR) 1958, v. 3, p. 432-438.

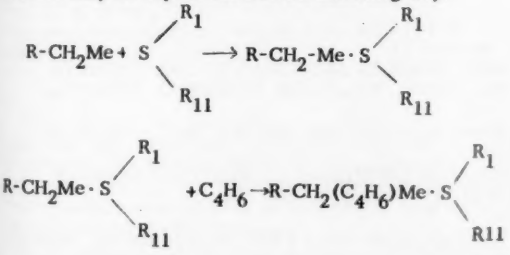
Köster, R.
SIMPLE SYNTHESIS OF RING SHAPED BORON TRIALKYLS. 8 Jan 60, 2p. 5 refs.
Order from SLA mi$1.80, ph$1.80 60-10994

Trans. of Angew[ante] Chem[ie] (West Germany) 1959, v. 71 [no. 15/16] p. 520.

Kropachev, V. A., Dolgoplosk, B. A., and Nikolayev, N. I.
COMPLEX FORMATION AND CHAIN STRUCTURE DURING THE POLYMERIZATION OF DIVINYL BY MEANS OF LITHIUM BUTYL (Kompleksoobrazovaniye i Struktura Tsepi pri Polimerizatsii Divinila Litiibutilom). July 58, 4p. 6 refs. C. T. S. no. 477.
Order from LC or SLA mi$1.80, ph$1.80 60-13317

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 115, no. 3, p. 516-517.

In order to clarify the influence of the oxidation products on the chain structure in the polymerization of butadiene it was necessary to investigate the influence of oxygen. It was established that in the polymerization of the divinyl by organic compounds of lithium an introduction of relatively small quantities of oxygen into the system results in a considerable increase in the number of 1, 2 links in polybutadiene at the expense of the reduction of the number of 1, 4 links. The addition of alcohol and phenol shows similar influence on the structure of the polymer-chain. The data obtained, point to the necessity of protecting the system from the introduction of oxygen when synthesising divinyl polymers with the maximum content of 1, 4 links in the chain. The influence of oxygen on the structure of polybutadiene is, apparently, due to the formation of oxygen-containing products which form complexes with the organic compounds of lithium. A similar effect is produced by dialkylmonosulphides. Experimental data obtained from the polymerization of butadiene by lithiumbutyl in the presence of dialkylsulphides showed that they increase considerably the number of 1, 2 links in the chain. In the case of dimethylsulphide the content of 1, 2 links is increased from 12 percent to 86 percent. The influence of dialkylsulphide decreases as the alkyl radical becomes larger. The influence of the complex-forming additions can be represented by using Ziegler's representation of the polymerization process as a successive metallo-organic synthesis. In the given case the scheme may be represented in the following way:



Lynen, F., Eggerer, H. and others.
FARNESYL-PYROPHOSPHATE AND 3-METHYL-Δ^3-BUTENYL-1-PYROPHOSPHATE, THE BIOLOGICAL PRECURSORS OF SQUALENE. III. THE BIOSYNTHESIS OF THE TERPENES (Farnesyl-Pyrophosphat und 3-Methyl-Δ^3-Butenyl-1-Pyrophosphat, die Biologischen Vorstufen des Squalens. III. [Die Biosynthese der Terpenes]) tr. by William H. Everhardy. 29 Jan 59, 18p. (1 fig. 1 diagr. omitted) 38 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-12913

Trans. of Angewandte Chemie (West Germany) 1958, v. 70, p. 738-742.

Acellular yeast extracts transform tagged mevalonic acid into squalene. A report is given on experiments in which two new intermediate products could be isolated and identified as isopentenyl pyrophosphate and farnesyl pyrophosphate. The preparative synthesis of isopentenyl pyrophosphate is described, and its biological conversion into farnesyl pyrophosphate and squalene is discussed. The tagged compound could be incorporated in cholesterol and rubber with enzymes of other origin and was proved by this to be the universal building block of the natural substances falling under the "isoprene rule." (Author)

Moraglio, P.
THE VISCOMETRIC DETERMINATION OF THE AVERAGE MOLECULAR WEIGHT OF ETHYLENE-PROPYLENE COPOLYMERS. [1959] [10]p. 15 refs.
Order from SLA mi$1.80, ph$1.80 60-14210

Trans. of [Ia] Chimica e l'Industria (Italy) 1959, v. 41, no. 10, p. 984-987.

The Flory-Stockmayer theory is applied to ethylene-propylene copolymers with the object of determining the constants K' and a, in the relation $[\eta] = K' \cdot M^a$ for various compositions. The constants thus found allow us to compute approximately, but with sufficient precision for technical purposes, the viscosimetric molecular weight M_V for this type of copolymer. (Author)

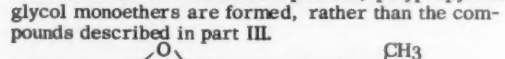
Nazarov, I. N. and Semenovskiy, A. V.
THE PREPARATION OF AROMATIC ACIDS BY OXIDATION OF THE SIDE CHAINS IN AROMATIC COMPOUNDS BY NITRIC ACID, II. [1959] 5p.
Order from ATS $9.40 ATS-81M37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1957, no. 9, p. 1101-1104.

Okawara, M[akoto].
STUDIES ON PROPYLENE CHLOROHYDRIN AND PROPYLENE OXIDE. PTS. III-IV. REACTIONS OF PROPYLENE OXIDE WITH HYDROXY COMPOUNDS; THE SYNTHESIS OF PHENOXYPROPANOLS, 1; THE SYNTHESIS OF PROPYLENE GLYCOL MONOETHERS AND THEIR PROPERTIES, 2. [1959] [17]p. 2 refs.
Order from SLA mi$2.40, ph$3.30 60-14139

Trans. of [Kogyo Kagaku Zasshi] (Japan) 1952, v. 55 [no. 4] p. 219-221 and [no. 5] p. 273-275.

Pt. III: An improved method is described for synthesizing phenoxypropanol (FP), both at high and at atmospheric pressures, in the presence of a caustic alkali catalyst. The highest yield obtained was 98%, which makes production profitable. Two isomers were found in the FP. (Paper presented at the Tokai district meeting of the Chemical Society of Japan, November 1951). Pt. IV: When a large excess of oxide is allowed to react with phenols, polypropylene glycol monoethers are formed, rather than the compounds described in part III.



The products of the reactions involving phenols or higher alcohols and an excess of ethylene oxide have been recognized as excellent surface active agents, while the reaction product with propylene oxide has not been studied in detail thus far. The author studied the reaction of an excess of propylene oxide with phenols, alcohols, organic acids or amines, and investigated the surface active properties of the reaction products. The product $C_6H_{11}OCH_2CH(OH)CH_3$ of the reaction between cyclohexanol and propylene oxide gave an ester that had a high boiling point, a low setting point (?), and showed promise as a plasticizer. (Author)

Plazek, E. and Tyka, R.
THE PREPARATION OF TRIBENZOYL PHOSPHIDE. [1959] 2p.
Order from ATS $3.50 ATS-75M37P

Trans. of Roczniki Chem[ii] (Poland) 1959, v. 33, p. 549-550.

Poray-Koshits, A. and Grachev, I. V.
TO THE PROBLEM OF THE TRANSFORMATIONS OF DIAZO COMPOUNDS, I. THE REACTIONS OF p-NITRODIAZOBENZENE AND THE THEORY OF THE STRUCTURE OF DIAZO COMPOUNDS, tr. by J. Rudinger. [1959] [19]p. 21 refs. M 177.
Order from LC or SLA mi$2.40, ph$3.30 59-19072

Trans. of unidentified Russian mono. from the State Inst. of Applied Chemistry.

The method of acidimetric titration with a glass electrode applied to the reciprocal transformations of different forms of p-nitrodiazobenzene made it possible to draw conclusions concerning both the character of these transformations and the structure of different forms of diazocompounds. The form of diazocompounds that most actively enters the coupling reaction is the diazonium cation. The data of potentiometric titration made it possible to state the formation of two compounds of the saltforming type which are converted into each other. The first one is formed under the action of an acid on unstable sodium salt of the diazocompound, or under the action of an acid on an alkali on the chloride of the diazocompound. The second one is formed after acidification of the stable sodium salt of the diazocompound. These salts contain no mineral cations or anions. The second one of these compounds is titrated with different amounts of hydrochloric acid: in the case of slow reaction an equimolecular amount of the acid is necessary; in the case of a rapid reaction, only half that amount. The same compound undergoes decomposition with elimination of nitrous acid and the formation of a diazoaminocompound in equimolecular amounts. The observations make it necessary to give up the theory of stereoisomeric transformations of diazocompounds worked out by Hantzsch and to propose a new hypothesis of the structure and transformations of diazocompounds, based on the idea that diazocompounds are resonance compounds. On the basis of this hypothesis the first of the salt-forming compounds should be considered as the diazonium diazotate and the second one as the diazonium nitrosaminate. The diazonium cation forming these salts is actually that form of the diazocompounds which is capable of bring about the azo-coupling reaction. (See also 59-19078)

Pracejus, Horst.
2,2-DIMETHYL-CHINUCLIDONE-(6), A MESOMERY-FREE ACID AMIDE. [1959] 8p. (diagr. 1 graph [formulae] omitted) 19 refs.
Order from SLA mi$1.80, ph$1.80 60-14069

Partial trans. (p. 988-993) of Chem[ische] Ber[ichte] (West Germany) 1959, v. 92, no. 4, p. 988-[998].

2,2-methyl-chinuclidone-(6) was prepared, by a 12-stage synthesis, in a racemic and optically active form. This "Lactame" is for steric reasons not capable of any acid amide mesomery. The characteristics resulting from this (basicity, reactivity, and spectral behavior) are investigated and discussed. (Author)

Schwarzenbach, G., Gut, R., and Anderegg, G.
COMPLEXES XXV. POLAROGRAPHIC INVESTIGATION OF EXCHANGE EQUILIBRIUMS; NEW DATA ON THE FORMATION CONSTANTS OF METALLIC COMPLEXES OF ETHYLENEDIAMINE TETRAACETIC ACID AND OF 1,2-DIAMINOCYCLOHEXANE TETRAACETIC ACID. [1959] [25]p. (7 figs. 6 tables [summary] omitted) 20 refs.
Order from SLA mi$2.70, ph$4.80 60-14044

Trans. of Helv[etica] Chim[ica] Acta (Switzerland) 1954, v. 37 [no. 4] p. 937-957.

Seipold, O.
NEW RESULTS AND IDEAS IN THE FIELD OF POLYVINYL CHLORIDE RESEARCH. [1959] 10p. 1 ref.
Order from SLA mi$1.80, ph$1.80 60-14172

Trans. of Chem[ische] Tech[nik] (East Germany) 1949, v. 1, no. 4, p. 107-111.

Vinyl chloride, $CH_2 = CHCl$, an unsaturated, chlorinated hydrocarbon that is gasiform at room temperature, is known to be capable, when activated (with removal of the double bond) of being converted to polyvinylchloride (PVC). Concomitantly there is produced, depending on the polymerization conditions, a shorter or longer chain of C atoms bonded in accordance with

the primary valences and carrying, alternately, 2 H atoms, or 1 H atom, and 1 Cl atom. To what extent the other possibility, that of addition, is a factor (whereby vicinal CH_2 or CHCl groups appear) cannot be stated with certainty as yet. (Author) (Paper read at the 1st Plastics Conference of the Technical Chamber on 21 and 22 April, 1949, in Berlin)

Stachura, W.
p-NITROPHENETOLE; METHOD OF SYNTHESIS FROM p-NITROCHLOROBENZENE. [1960] 22p. 24 refs.
Order from SLA mi$2.70, ph$4.80 60-14143

Trans. of Przemysl Chemiczny (Poland) 1955, v. 11[34] p. 630-635.

There is given a synthetic survey of a technical method for the production of paranitrophenetole from paranitrochlorobenzene and ethyl alcohol in the presence of alkalies. There are discussed the side reactions with special reference to their harmfulness on the main reaction. There are described the author's own investigations on good catalysts of the reaction. As a result of this work it has been found that one of the best catalysts of the reaction of ethoxylation of paranitrochlorobenzene is copper hydroxide. There is shown the superiority of the method with employment of $Cu(OH)_2$ over other methods from the viewpoint of its application in the practice. (Author)

Sudo, Rokuro, Akiyama, Yoshisuke and others.
STUDIES ON γ-BUTYROLACTONE DERIVATIVES. I. SYNTHESIS OF α-AMINO-γ-BUTYROLACTONE. [1959] [13]p. 10 refs.
Order from SLA mi$2.40, ph$3.30 60-14123

Trans. of [Nihon Kagaku Zasshi (Japan) 1953, v. 74, p. 1009-1011].

Turunen, L. and Berndtsson, B.
INFLUENCE OF DIFFERENT FACTORS ON THE HARDENING OF UNSATURATED POLYESTERS AT ELEVATED TEMPERATURES. 8 Jan 60, 11p. (1 table 10 figs. omitted).
Order from SLA mi$2.40, ph$3.30 60-10995

Trans. of Kunstoffe (West Germany) 1959, v. 49, no. 1, p. 9-14.
Another translation is available from ATS $14.95 as ATS-70L30G [1959] 13p.

Zakharkin, L. I. and Savina, L. A.
ACTION OF TRIETHYLALUMINUM AND DI-ISOBUTYLALUMINUM HYDRIDE ON CERTAIN ALLYL COMPOUNDS [Deystviye Trietilalyuminiya i Diizobutilalyuminiygidrida na Nekotoryye Allil'nyye Soyedineniya]. [1959] 6p.
Order from ATS $8.00 ATS-98M37R

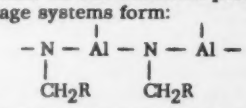
Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 3, p. 444-449.

The effect of triethylaluminum and diisobutylaluminum hydride on allyl compounds CH_2=CH-CH_2X, X being OR, SR, and NR_2, was investigated. A cleavage of the C-X bond takes place and an unsaturated hydrocarbon and corresponding $(C_2H_5)_2AlX$ are formed. The inability of triethyl aluminum to react with the double bond of the allyl compounds investigated may be explained by the decreasing electron density at the heteroatom owing to the complex bond that reduces the activity of the double bond. In contrast with the triethyl aluminum the addition of the diisobutyl aluminum-hydride to the double bond takes place comparatively easily.
$(i\text{-}C_4H_9)_2$-$AlCH_2CH_2CH_2X$ are formed herein, where X = OR, NR_2, and SR. Further an attempt was made to allow the diisobutyl aluminumhydride to react with the double bond of the vinyl butyl ether. As a result of this reaction, which proceeds with self-heating, ethylene (at 30 to 35°) and butoxy diisobutyl aluminum were obtained. Apparently the organic aluminum compound of the R_2Al-CH_2CH_2OR type, which is initially formed, is as unstable as similar organic magnesium compounds $XMgCH_2CH_2X$ (Refs 6, 7). It decomposes, while ethylene is eliminated and alcoholate $(i\text{-}C_4H_9)_2AlH + CH_2$=CH-$OC_4H_9 \longrightarrow$ $(i\text{-}C_4H_9)_2AlCH_2CH_2OC_4H_9 \longrightarrow$ $(i\text{-}C_4H_9)_2AlOC_4H_9 + CH_2$=$CH_2$ is formed.

Zakharkin, L. I. and Khorlina, I. M.
THERMAL DECOMPOSITION OF ADDITION PRODUCTS OF DIISOBUTYLALUMINUM HYDRIDE TO NITRILES [Termicheskoye Razlozheniye Produktov Prisoyedineniya Diizobutilalyuminiygidrida k Nitrilam]. [1959] 3p.
Order from ATS $6.00 ATS-99M37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959 [no. 3] p. 550-552.

A gas consisting mainly of isobutylene was separated if the compounds RCH=N - $Al(i\text{-}C_4H_9)_2$ were heated to 220 to 240°. In the hydrolysis of the residue, however, the corresponding amine RCH_2NH_2 forms with a yield of up to 80% of the computed value. Thus, in heating a reduction takes place due to the displacement of isobutylene and the formation of new Al-N bonds. .In this reduction products of the following linkage systems form:



In adducts of diisobutyl aluminum hydride and disubstituted amides a reduction at the expense of the displacement of isobutylene is possible in principle. It is, however, unimportant and it is accompanied by strong resinification.

Physical Chemistry*

Agranat, N. N. and Shirokov, M. F.
THE THEORY OF THE METHOD OF DETERMINATION OF THE LIMITING SHEAR STRESS OF DISPERSE SYSTEMS BY THE CONE PENETROMETER, tr. by Lionel Mote. [1959] [11]p. 7 refs.
Trans. no. 1002; M 324.
Order from LC or SLA mi$2. 40, ph$3. 30 59-19179

Trans. of *Kolloidnyy Zhurnal (USSR) 1957, v. 19, no. 1, p. 9-13.

On the basis of the properties of a visco-plastic medium a theory is developed for the conical plastometer which leads to the well-known formula, $\theta = KG/h^2$, of P. A. Rebinder (Kolloid, Zhur. 10: 466, 1948) but with a different coefficient, K, calculated according to

$$\frac{1}{K} = \pi \tan^2 \alpha \left\{ 2\alpha - 2(\sin\alpha + 1)^2 \ln \frac{\sin\alpha}{\sin\alpha + 1} + \left[1 - \cot\left(\frac{\pi}{4} + \frac{\alpha}{2}\right) \right] (2 \sin\alpha + 1)^2 \ln \frac{2 \sin\alpha}{2 \sin\alpha + 1} + \left[\cot\left(\frac{\pi}{4} + \frac{\alpha}{2}\right) - \cot\left(\frac{\pi}{4} + \alpha\right) \right] \cot^2\left(\frac{\pi}{4} + \alpha\right) \ln \frac{2}{\cot\alpha + 1} + \cot\left(\frac{\pi}{4} + \frac{\alpha}{2}\right) \left[\cot\frac{\pi}{4} + \alpha - (2 \sin\alpha + 1) \right] \right\}.$$

Values of K, calculated according to this equation are 0. 959, 0. 416, 0. 214, and 0. 073, respectively, for cones with angles at the apex $2\alpha = 30^\circ$, 45°, 60°, and $89^\circ 20'$. Values of θ calculated on the basis of the Rebinder equation, but with the new values of K, agree well with values obtained experimentally (Kolloid. Zhur. 19: 3-8, 1957, a translation of which is available from LC or SLA as 59-19178).

Akopyan, A. U.
OVERVOLTAGE OF CATHODIC REDUCTION OF OXYGEN AND ENERGY OF ACTIVATION OF THE CORRESPONDING ELECTROCHEMICAL PROCESSES (Perenapryazheniye Katodnogo Vosstanovleniya Kisloroda i Energii Aktivatsii Sootvetstvuyushchikh Elektrokhimicheskikh Protsessov) tr. by A. Pingell. 1959 [13]p. 16 refs. N R L Trans. no. 769.
Order from OTS $0. 50 60-21038

Trans. of *Zhurnal Fizicheskoy Khimii (USSR) 1959, v. 33, no. 7, p. 1625-1631.

A study was made of the cathodic reduction of oxygen on mercury, platinum, gold and silver in acid and alkaline solutions at various temperatures. The curves obtained expressing the relation between the overvoltage and the logarithm of the current density have two linear regions corresponding to Tafel's equation with different values for the constants a and b. The first region corresponds to formation of hydrogen peroxide and the second to formation of water. The value of b shows that the first region in alkaline medium corresponds to concentration polarization; in other cases, evidently electrochemical polarization takes place. The real activation energy A of the cathodic reduction of oxygen and the corresponding pre-exponential factor B have been calculated from the experimental data. The values of A and B depend little on the nature of the cathode.

Balashova, N. A.
ADSORPTION OF BROMINE AND IODINE ATOMS ON PLATINUM [Adsorbtsiya Ionov Broma i Yoda na Platina]. [1959] 12p. 28 refs.
Order from MDF $6. 00 MDF B-151

Trans. of Zh[urnal] Fiz[icheskoy] Khim[ii] (USSR) 1958, v. 32, no. 10, p. 2266-2273.

The adsorption of iodine and bromine ions on smooth and platinized platinum has been studied by the tagged atom method as a function of potential, time and temperature. It has been established that the adsorption of bromine and iodine anions depends on the potential of the platinum electrode, being increased with the growth of a positive and being decreased with the growth of a negative charge on the surface. The magnitude of the bromine and iodine adsorption increases with time and drops as the temperature rises. The adsorption of bromine and iodine ions on platinum is irreversible to a large degree, where the degree of irreversibility increases with time and decreases with temperature. The significant penetration of bromine and iodine ions into the depth of the metal to be adsorbed on the inner surface has been proven by direct experiments. The magnitude of the bromine and iodine ion adsorption on smooth platinum electrodes is ten times greater than that on platinized platinum in a computation per sq cm of measurable actual surface, which is explained by the difference in their structure. (Author's conclusions)

Dorgelo, H. B. and Daame, H.
THE DETERMINATION OF SIZE, SHAPE, AND SIZE DISTRIBUTION OF SUBMICROSCOPIC PARTICLES. [1959] [15]p. (22 figs. omitted).
Order from SLA mi$2. 40, ph$3. 30 60-10793

Trans. of Ned[erlands] Tijdschrift [voor] Natuurkunde (Netherlands) 1951, v. 17, no. 7, p. 209-233.

A sample of MgO (prepared by heating $MgCO_3$ at 600°C) was made by dispersing the particles in vaseline in a vacuum. Through this the formation of small hollows between the particles occurred. Comparison with the curves of Shull and Hoess gave 250 A as the average particle size and a fairly homogeneous distribution of the size, as the coefficient m in the Maxwell distribution must be approximately 3. This result was confirmed by a photograph made by the Instituut voor Electronenmicroscopie at Delft. Scattering curves were recorded for three samples of carbon black following the methods for simple and multiple scattering. The method of simple scattering apparently gives very strongly deviating values for the larger particles. This can be a result of reciprocal interference or of multiple scattering, although this last should not be expected in the relatively thin samples which are used. The particle size is a factor 20 to 100 times greater than the crystallite size; consequently the particles are built up out of very many crystallites. Apparently no pores are present between the crystallites, as gas adsorption and the electron microscope methods give a particle size which agrees well. The MgO particles apparently consist of a single crystal.

Ende, H. vom, and Bardenheuer, F.
RAPID METHOD FOR DETERMINING THE BASICITY OF OPEN-HEARTH SLAGS. [1960].
Order from BISI £.5 BISITS 1423

Trans. of Arch[iv fur das] Eisenhut[tenwesen] (West Germany) 1959 [v. 30] July, p. 391-396.

Measuring the basicity of open-hearth slags by determining the pH or the electrical conductivity of aqueous suspensions of slags. Review of literature. Description of the rapid method developed. Procedure. Accuracy of the method. Use of basicity figure in desulphurising in open-hearth furnaces. Development of a nomogram to find out the amount of lime to be added to obtain a given final sulphur content. Electrical conductivity of aqueous suspensions of basic and blast-furnace slags. (Author)

Entelis, S. G., Tsikulin, M. A. and others.
DETERMINATION OF THE SPECIFIC SURFACE AREAS OF POROUS BODIES AND OF POWDERS BY THE METHOD OF GASEOUS FLOW UNDER LOW PRESSURE [METHODS AND APPARATUS OF PHYSICAL-CHEMICAL RESEARCH] [Izmereniye Udel'noy Poverkhnosti Poristikh tel i Poroshkov Metodom Istecheniya Razrezhennogo Gaza. Metody i Tekhnika Fiziko-Khimicheskogo Issledovaniya]. [1959] 7p.
Order from ATS $9.75 ATS-88M37R

Trans. of Zhur[nal] Fiz[icheskoy] Khim[ii] (USSR) 1958, v. 32, no. 9, p. 2187-2191.

The specific surface area of porous bodies can be measured using a gaseous flow in the Knudsen pressure range, which is described in the papers of B. V. Deryagin and his co-workers. The present paper describes an improved and simpler apparatus. The formula given by Deryagin was used in conversions in carrying out determinations. Using this method the specific surface areas of the following substances were determined (Tables 1 and 2): porous glass (Shott Nr 4, Iena); porous glass (Shott Nr 3, Druzhnaya Gorka); porous porcelain (svecha Chemberlena); birch charcoal; aluminum silicate; untreated kaolin as well as kaolin which had been heated previously to 800°; porous quartz; burned chamotte; NB powder; tetranitro penterythrite; hexagene; and trinitrotoluene (TNT). (See also 59-11871, 59-13023)

Fedorova, N. S.
RELATIONSHIP BETWEEN HYDROGEN OVERVOLTAGE ON ALLOYS AND THEIR INTERATOMIC DISTANCES (O Svyazi Mezhdu Perenapryazheniyem Vodoroda na Splavakh i Mezhatomnymi Rasstoyaniyami v Nikh). Dec 59, 8p. 13 refs. RTS 1117.
Order from LC or SLA mi$1. 80, ph$1. 80 60-13459

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1958, v. 32, no. 3, p. 506-511.

The potential of hydrogen evolution on electrolytically deposited iron-nickel alloys is shown to differ from the potentials on pure iron and nickel in the same solutions. An examination of hydrogen evolution potential values at high current densities revealed that alloys and pure metals can be arranged in a reproducible ascending order. The relationship between the potential of hydrogen evolution and the logarithm of current density can be expressed for the majority of alloys by two intersecting straight lines with different values of coefficient b in the Tafel equation; at high current densities, b is always greater than at low ones; the magnitude of b changes in relation to the composition of the alloy and the composition of the solution. On the basis of data on parameters of the Fe-Ni alloy lattices it is shown that the interatomic distances of an alloy change with composition from 2. 47 to 2. 58 A. By comparing the potential of hydrogen evolution at high current densities with the interatomic distances of alloys and pure metals, the relationship between these values for pure metals, established by N. E. Khomutov, was confirmed. As the interatomic distance of an alloy approaches 2. 76 A, the overvoltage on it decreases.

Fincke, A. and Heinz, W.
COUETTE MEASUREMENTS WITH ROUGHENED CYLINDERS. [1959] 3p. 2 refs.
Order from SLA mi$1. 80, ph$1. 80 60-14008

Trans. of Kolloid-Zeitschrift (West Germany) 1957, v. 152, no. 2, p. 148-149.

A Couette measuring apparatus, in which both cylinders had extensively roughened surfaces as a result of coatings containing quartz sand, yielded decisively optimum values. A stress-relieving test followed at intervals of about one minute; true Bingham yield values could thus be measured (chocolate with low fat content). Reproducibility of results was very good. Measurement results obtained with Newtonian and non-Newtonian (however, homogeneous or molecularly dispersed) substances did not deviate from values obtained with smooth cylinders; visual observation of the behavior of, say, toothpaste in the annular space showed no slippage effect during this measuring period. According to these observations, coatings with the usual fat content are not actually Bingham bodies, for their true yield point is lower than that obtained by extrapolation.

Galkin, A. A. and Kichigin, D. A.
INVESTIGATION OF THE PARAMAGNETIC RESONANCE OF DONBASS COALS (Issledovaniye Paramagnitnogo Rezonansa v Kamennykh Uglyakh Donetskogo Basseyna) tr. by M. Slade. [1959] [18]p. (foreign text included) 12 refs. Trans. no. 4202.
Order from LC or SLA mi$2. 40, ph$3. 30 60-15376

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1958, v. 3, no. 7, p. 8-14.

Investigations of paramagnetic resonance in coals of different geological age revealed the existence of a correlation between the intensity of the PR line and the degree of metamorphism of the coal. The intensity of the PR line increases with increasing geological age of the coal. The breadths of the PR lines of different grades of anthracite vary between 0.5 and 3.5 oersteds, the widths of the lines of the other coals between 6 and 7 oersteds. The narrowing of the PR line in anthracite is caused by exchange interaction. An influence of the structural components of coal on the breadth and intensity of the PR line was established. The PR lines of the fusain of coking coal, gas coal, and long-flaming coal are indistinguishable within the limit or error of the experiment. By comparing the intensities of nuclear and electronic resonances, the static spin susceptibilities of coals were established and the order of magnitude of the electron concentration in 1 g of coal was determined.

Gavrilov, B. G. and Kim, N.
THERMOCATALYTIC REACTIONS OF ALKYLNAPHTHALENES (ISOAMYLNAPHTHALENE). [1959] 4p.
Order from ATS $5.00 ATS-84M37R

Trans. of *Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1957, v. 30, no. 6, p. 963-964.

Gu, Bo-e, U, Chzhen-syao, and Shapiro, M. D.
EFFECT OF DIFFERENT CATALYSTS ON THE PROCESS OF PARAFFIN OXIDATION. [1959] 9p.
Order from ATS $12.80 ATS-33M38R

Trans. of Khim[iyá] i Tekhnol[ogiya] Topliv i Masel (USSR) 1959, v. 4, no. 10, p. 10-16.

Gurdzhinyan, L. D.
EFFECT OF TEMPERATURE ON THE RHEOLOGICAL PROPERTIES OF CLAY SUSPENSIONS. [1959] 5p.
Order from ATS $8.25 ATS-89M37R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh Zaved[eniy]. Neft' i Gaz (USSR) 1959, v. 2, no. 7, p. 91-95.

Izmaylov, N. A.
INFLUENCE OF SOLVENTS ON STRENGTH OF ACIDS (Vliyaniye Rastvoriteley na Silu Kislot). Nov 59, 18p. 124 refs. RTS no. 1174.
Order from LC or SLA mi$2.40, ph$3.30 60-13179

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1950, v. 24, no. 3, p. 321-336.

The influence of different solvents on the strength of acids was reviewed. It was established that only for the acids of the same chemical group and in the solvents similar in structure the deductions derived from the Brönsted theory were applicable. The change in acid strength from one solvent to another is determined first of all by the basicity of the solvent; the dielectric constant is of secondary, although sufficiently essential importance. Usually on changing solvents there is both, general and relative change in the strength of acids. This influence of solvent was called its differentiating effect. The strongest differentiating effect is shown by the solvents which differentiate the strength of salts. The majority of solvents show strongest effect towards acids belonging to different chemical groups. The differentiating effect results from the interaction between the solvent and the dissolved acids of various chemical groups with the formation of addition products varying in composition and polarity. Besides this fundamental type of differentiating effect, three other types were demonstrated. It was established that the dissociation of acids does not take place according to the equations: $HA + M \rightleftarrows MH^+ - A^-$, as postulated by Brönsted, but according to the following equation: $HA + M \rightleftarrows MHA \rightleftarrows MH^+ + A^-$.

Kirmse, W.
REACTIONS WITH CARBENES AND IMINES AS INTERMEDIARY STAGES. [1959] 14p. (25 formulas omitted) 62 refs.
Order from SLA mi$2.40, ph$3.30 60-14071

Trans. of Angewande Chemie (West Germany) 1959, v. 71, no. 17, p. 537-541.

Splitting nitrogen off organic molecules is capable of leading to reactable uncharged intermediary stages with an electron sextet, to derivatives of the methylene CH_2 or of the imine NH. Other methods of forming these intermediary stages are given for comparison. Their reactions are discussed, as they depend upon structure and occurrence. Conversions that are utilizable for obtaining preparations are emphasized. (Author)

Koritskiy, A. T., Molin, Yu. N. and others.
ELECTRON PARAMAGNETIC RESONANCE STUDY OF RADICALS FORMED IN IRRADIATION OF POLYETHYLENE WITH FAST ELECTRONS. [1959] 12p.
Order from ATS $26.75 ATS-97M37R

Trans. of Vysokomolekulyarnyye Soyedineniya (USSR) 1959, v. 1, no. 8, p. 1182-1193.

Kuznetsov, A. N.
THE MECHANISM AND THE KINETICS OF THE LOW TEMPERATURE REDUCTION OF OXIDES OF IRON BY CARBON MONOXIDE, HYDROGEN, AND THEIR MIXTURES (Mekhanizm i Kinetika Nizkotemperaturnogo Vosstanovleniya Okislov Zheleza Okisyu Ugleroda, Vodorodom i ikh Smesyami). 1959 [18]p. 2 refs. NRL Trans. no. 735.
Order from OTS $0.50 59-21086

Trans. of Soveshchaniye Instituta Metallurgii Ural'skogo Filiala Akademii Nauk SSSR i Magnitogorskogo Metallurgicheskogo Kombinata, 1955. Trudy, p. 65-79.

The investigation was made with small briquettes made from powders of chemically pure oxide and magnetic oxide of iron. The activation energies of

the processes of reduction of Fe_2O_3 to Fe_3O_4 by hydrogen (-30 Kcal) and by carbon monoxide (-28 Kcal) were determined. The activation energy of the process of reduction of Fe_3O_4 to Fe by hydrogen appears to be 15.68 Kcal.

List, G.
BREAKDOWN VOLTAGE AND IGNITION LAG IN NITROGEN AT HIGHER PRESSURES (Über die Durchschlagsspannung und die Zündverzogerung in Stickstoff bei höherem Druck) tr. by D. A. Sinclair. 1959, 23p. 17 refs. Technical Trans. 828.
Order from NRCC

Trans. of Annalen der Physik (East Germany) 1957 [6 Folge] v. 19, p. 283-297.

The breakdown voltage of nitrogen was measured at pressures of 4 to 100 atm for small electrode spacings. Departures from Paschen's law were encountered when the breakdown field strength reached approximately 4×10^5 v/cm. The ignition lags measured for increasing voltage can be converted into the distribution function required by von Laue for statistically determined lag times. Up to approximately 20% overvoltage the mean statistical ignition lag is approximately inversely proportional to the percentage of overvoltage. Only at higher voltages does it decrease more sharply. The distribution functions obtained show that the measured time lags can be traced to purely statistical causes. This applies also to the region in which the departures from Paschen's law are encountered. The mean statistical ignition lags at high gas pressures and overvoltages of a few percent are of the order to a few seconds. This suggests that at high gas pressure and correspondingly high field strength a mechanism determined by the latter leads with but very small probability to a discharge. (Author)

Pleskov, Yu. V.
REDUCTION REACTION ON A GERMANIUM CATHODE. [1960] 6p. 9 refs.
Order from MDF $3.00 MDF P-141

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1960, v. 130, no. 2, p. 362-365.

Injection coefficients (the fraction of valence electrons in the total current) were experimentally obtained which showed that both free and valence electrons are involved in the reduction reaction on a Ge electrode when $KMnO_4$, $K_3Fe(CN)_6$, KI_3, quinone, or $K_2Cr_2O_7$ are used as oxidizers. Reduction of H_2O_2 did not affect I_{coll} and therefore was not accompanied by hole injection. The electrodes were 6-mm-diam disks about 12-mm thick, prepared from (111) oriented single-crystal n-type Ge with a specific resistivity of 2.5 ohm-cm and a hole-diffusion length of 0.5 to 0.7 mm. The values of α lay between 0 and 1, and, except for the case of $Cr_2O_7^{2-}$, were independent of the reduction current. Values of α were influenced by the concentration of $K_3Fe(CN)_6$ and of $KMnO_4$, but not by that of KI: the α was very responsive to the state of the electrode surface. As the negative Ge potential increased near the hydrogen-evolution potential, the α started to drop. Polarization curves on platinum and on n-type Ge electrodes were wave shaped where the limiting current density, i_{lim}, was the same in both metals. (The curve of the $KMnO_4$ reduction by Ge contained two waves.) The curves of the reduction of $K_3Fe(CN)_6$, $K_2Cr_2O_7$, quinone, and H_2O_2 by hole Ge also contained one wave while the $KMnO_4$ curve had two where the magnitude of i_{lim} was the same as on the Pt and n-type Ge electrodes up to current densities of 20 ma/sq cm (up to 100 ma/sq cm for $K_3Fe(CN)_6$. The limiting current was proportional to $\sqrt{\omega}$. The height of the waves for the reduction of KI_3 on p-type Ge was less than on n-type, and depended slightly on agitation of the solution.

Pliginskaya, L. V. and Chizhikov, D. M.
INVESTIGATION OF THE CATHODIC POLARIZATION OF NICKEL IN SULPHATE SOLUTIONS (Issledovaniye Katodnoy Polyarizatsii Nikelya v Sul'fatnykh Nastvorakh). July 58, 7p. 6 refs. C. T. S. no. 487.
Order from LC or SLA mi$1.80, ph$1.80 60-13320

Trans. of [Akademiya Nauk SSSR]. Institut Metallurgii. Trudy, 1957, v. 1, p. 78-84.

Experiments showed the possibility of electrodeposition of nickel from sulphate solutions without a buffer (boric acid). In the current density range 50 to 400 amp/sq m, in the absence of boric-acid polarization, is an approximately linear function of the logarithm of current density. This is in close agreement with the theory of retarded discharge of ions. An increase in temperature of the solution, pH (in the range 1 to 6), concentration of nickel, or content of chlorine ion leads to reduction of polarization at a given current density. Addition of 20 g/ℓ of boric acid to the solution, while preserving the overall picture of the relative positions of all the polarization curves, shifts them in the direction of increased polarization.

Plischel, A. and Eckhard, S.
ORGANIC SOLVENTS IN FLAME SPECTROMETRY. [1960].
Order from BISI £3 10s BISITS 1636

Trans. of Arch[iv für das] Eisenhütt[enwesen] (West Germany) 1959 [v. 30] Dec, p. 731-735.

Effect of alcohol in flame spectrometry. Practical application. Explanatory experiments. Determination of volume to be atomized. Effect of droplet size. Conditions for direct atomization. Effect of flame temperature. Chemical influences. (Author)

Schenck, H. and Gerdom, K. H.
EQUILIBRIA OF CARBON AND OXYGEN IN LIQUID IRON AND THE EFFECT OF LOW SILICON CONTENTS UPON THE EQUILIBRIA. [1960]
Order from BISI £5 15s BISITS 1461

Trans. of Arch[iv für das] Eisenhütt[enwesen] (West Germany) 1959 [v. 30] Aug, p. 451-460.

The equilibrium relations between carbon and oxygen in liquid, silica-containing iron in solution were re-valuated with the object of determining the true equilibrium constants and the reaction coefficients of the reacting elements. The equilibrium diagrams of the reactions were consequently re-drawn. (Author)

Schmidt, K. G.
PHASE CONTRAST MICROSCOPY IN DUST TECHNOLOGY (Die Phasenkontrastmikroskopie in der Staubtechnik) tr. by W. H. Everhardy. 25 Mar 59 [51]p. (105 figs. omitted).
Order from LC or SLA mi$3.30, ph$7.80 59-14631

Trans. of Staub (West Germany) 1955, p. 436-[4]67.

Semenchenko, V. K.
THE BASIC CHARACTERISTICS OF GENERALIZED CRITICAL PHENOMENA (Osnovnye Svoistva Obobshchennykh Kriticheskikh Yavleniy). Jan 60, 19p. 29 refs. RTS no. 1222.
Order from LC or SLA mi$2.40, ph$3.30 60-15063

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1952, v. 26, no. 9, p. 1337-1348.

The identity of critical phenomena and phase changes of the second kind is stressed. (See also 60-13481)

Semenchenko, V. K.
CRITICAL PHENOMENA AND TYPE II PHASE TRANSITIONS (O Kriticheskikh Yavleniyakh i Fazovykh Perekhodakh II Roda). Jan 60, 9p. 5 refs. RTS no. 1221.
Order from LC or SLA mi$1.80, ph$1.80 60-13481

Trans. of A[kademiya] N[auk] SSSR. Sektor Fiziko-Khimicheskogo Analiza. Izvestiya, 1955, v. 26, p. 56-61.

The elementary theory of critical transitions is shown to permit the prediction of all the basic features of type II phase transitions. (See also 60-15063)

Shul'ts, A. L. and Tsyganov, G. A.
THE MECHANISM OF THE DEPASSIVATING EFFECT OF CHLORIDES ON THE PROCESS OF ANODIC SOLUTION OF NICKEL. [1959] 3p.
Order from ATS $6.00 ATS-20L33R

Trans. of Akad[emiya] Nauk Uzbek[skoy] SSR [Tashkent]. Doklady, 1954, no. 9, p. 33-36.

Tomassi, W. and Houwalt, A.
POTENTIALS OF METALLIC ELECTRODES IN PURE WATER, tr. by E. R. Hope. Mar 59 [12]p. 27 refs. T 4 Pol.
Order from NRCC mi$0.50, ph$3.00 NRCC C-3142

Trans. of Przemysl Chemiczny (Poland) 1957, v. 13[36] [no. 2] p. 82-87.

Potentials of mercury and platinum electrodes were measured in pure water. The electrodes were platinum plates covered with platinum black of various degrees of subdivision, smooth platinum wires, and the same wires coated with platinum black. The electrodes were tested in deaerated water and in air-saturated water. The results obtained show that both mercury and platinum electrodes in pure water behave like oxide electrodes and assume a potential corresponding to the molar activity of hydroxyl ions.

Trapeznikov, A. A. and Fedotova, V. A.
THIXOTROPY AND METHODS OF ITS ESTIMATION IN LIQUID-PLASTIC COLLOIDAL SYSTEMS (Tiksotropiya i Metody yeye Otsenki v Zhidko-plastichnykh Kolloidnykh Sistemakh) tr. by G. N. Gibson. Jan 55 [7]p. (4 figs omitted) 19 refs. L.C. 464; TL 1630; M 1055.
Order from LC or SLA mi$1.80, ph$1.80 60-13758

Trans. of [Akademiya] Nauk SSSR. Doklady, 1954, v. 95, no. 3, p. 595-598.
Another translation is available from SLA as RT-3424 [10]p.

See also 59-17517

Trillat, J. J., Tertian, L., and Britton, S. C.
STUDY BY ELECTRON DIFFRACTION AND MICROSCOPIE OF NATURAL OR ARTIFICIAL OXIDATION FILMS FORMED ON PURE TIN AND ON TIN PLATE. 4 Dec 59 [14]p. 6 refs.
Order from SLA mi$2.40, ph$3.30 60-14126

Trans. of Métaux (Corrosion-Industries) (France) 1957, v. 32, p. 475-481.

The artificial oxidation layers formed on tin plate after different passivation treatments generally consist of SnO_2, although this oxide has never been identified in the natural oxidation films obtained at temperatures lower than or equal to 218°C. There is also found there the stannous oxide SnO and the simultaneous presence of the two was clearly observed in one sample. The presence of Fe_3O_4 seems equally confirmed: SnO_2 and Fe_3O_4 badly crystallized or very finely crystallized give way to diffuse halos or enlarged rings which were observed at a number of points. The oxide SnO seems always crystallized in very large crystals. Fe_3O_4 is formed on the steel where there are pores in the tin coating. The presence of chrome is responsible for a great part of the protective layer of the films. It is necessary to think that the chrome is not crystallized.

Tsuruta, Shiro and Suzuki, Yasuo.
MELTING POINT OF OXALIC ACID GLYCOL ESTER. [1959] 2p. 4 refs.
Order from SLA mi$1.80, ph$1.80 60-14012

Trans. of [Nihon Kagaku Zasshi] (Japan) 1948, v. 69 [no. 4/6] p. 56-57.

Wikdahl, N. A. L.
PROCESS AND APPARATUS FOR SEPARATING OR FRACTIONATING DISPERSIONS, tr. by C. P.
7 Jan 60, 6p. (2 figs. omitted) 2 refs.
Order from LC or SLA mi$1. 80, ph$1. 80 60-15099

Trans. of Swedish patent 154758, cl. 1 a : 13, pat. 8 Sep 53, granted 5 Apr 56, pub. 12 June 56.

A process is described wherein the dispersion is introduced tangentially into a chamber with circular cross section and is divided into two fractions which are continuously fed from the chamber each through its outlet opening. The process is characterized in that at least one of the fractions in the passage through the outlet opening is brought into direct contact with a device located therein which depending on the density of the dispersion increases or diminishes the size of the outlet opening. The apparatus consists of a chamber with circular cross section which is provided with a tangential inlet for the dispersion and with two outlets for the fractions. The apparatus is characterized in that in at least one of the outlets a device is placed which is automatically adjustable along the major axis of the chamber in dependency on the density of the fraction. The device is elastically suspended or supported.

Yesel'son, B. N. and Lazarev, B. G.
ON THE VELOCITY OF TRANSFER BY THE He II FILM. [1959] 6p. 19 refs. T/L 839; M 1056.
Order from LC or SLA mi$1. 80, ph$1. 80 60-13759

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1951, v. 81, no. 4, p. 537-[539].
Another translation is available from LC or SLA as RT-2106 [6]p.

Zhigach, A. F. and Kochneva, L. N.
NITROGEN DERIVATIVES OF DIBORANE (Azotsoderzhashchiye Proizvodnye Diborana).
July 58 [16]p. 64 refs. C. T. S. no. 452.
Order from LC or SLA mi$2. 40, ph$3. 30 60-15565

Trans. of Uspekhi Khimii (USSR) 1956, v. 25, no. 10, p. 1267-1281.

EARTH SCIENCES

Magnitskiy, V. A.
PRINCIPLES OF EARTH PHYSICS. [1959] [439]p. 139 refs. F-TS-9444/V.
Order from LC or SLA mi$11. 10, ph$66. 60 60-13306

Trans. of mono. Osnovy Fiziki Zemli, Moscow, 1953, 290p.

Topics discussed include (1) the age and temperature of the earth, (2) the figure of the earth, (3) seismic phenomena, (4) elements of the theory of elasticity, (5) the constitution of the earth on the basis of seismic data, (6) the density and elastic constants of the earth, (7) the structure of the earth's crust and its movements, (8) the gravitational field and the constitution of the earth, and (9) an interpretation of the fundamental conclusions on the constitution of the earth in the light of the data of modern physics. The book is designed as a textbook for advanced university students majoring in astronomy and geodesy.

Climatology and Meteorology

Alekseyev, G. A.
METHODS FOR CALCULATION OF MAXIMUM DISCHARGE AND HYDROGRAPHS OF FLOODS IN ABSENCE OF OBSERVATION [O Metodakh Rascheta Maksimal'nykh Raskhodov i Gidrografov Pavodkov pri Otsutstvii Nablyudenii]. 22 Jan 60, 13p. 6 refs. JPRS: L-897-D.
Order from OTS $0. 50 59-11595

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 6, p. 40-45.
Another translation is available from LC or SLA mi$2. 40, ph$3. 30 as 59-22230, CTS-444, Mar 59 [11]p.

The most frequently used empirical or semiempirical formulas for computing maximum flood discharges are reviewed, the principles on which they are based are critically assessed, and a previous attempt by D. L. Sokolovskii (Meteorologiya i Gidrologiya 1956, no. 5) to make a similar review is criticized.

Astapenko, P. D.
ATMOSPHERIC FRONTS IN THE WEST ANTARCTIC
28 Jan 60, 11p. JPRS: L-1184-N.
Order from OTS $0. 50 60-11221

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 24-29.

We wish to demonstrate with actual data certain peculiarities of the analysis of atmospheric fronts in the Antarctic, revealed in the course of practical investigations at the International Weather Center in Little America during the autumn and winter of 1958. (Author)

Churinova, M. P.
EXPERIMENT IN CALCULATING THE COEFFICIENT OF TURBULENCE FROM A TEMPERATURE-AND-WIND SOUNDING (Opyt Vychisleniya Koeffitsienta Turbulentnosti po Temperaturno-vetrovomu Zondirovaniyu) tr. by Marcel L Weinreich.
23 Apr 59, 9p.
Order from LC or SLA mi$1. 80, ph$1.80 SCL-T-247

Trans. of [Glavnaya Geofizicheskaya Observatoriya, Leningrad. Trudy] (USSR) 1956, no. 63(125), p. 168-171.

A study indicates that the coefficient of turbulence, K, can be computed quickly and sufficiently exact by means of L. D. Laikhtman's formula

$$K = \frac{\omega_z U_H^4}{g^2 \left(\ln \frac{\theta_H}{\theta_0} \right)^2}$$

where K is in sq m/sec, U_H is the geostrophic velocity of the wind in m/sec, g is the acceleration of the force of gravity in m/sec^2, θ_0 and θ_H are the potential temperatures in degrees (absolute scale) at the level of the booth and at the level H, respectively; and $\omega_z = \omega \sin \phi = 7.29 \times 10^{-5}$ ($\sin \phi$ is the angular velocity of the rotation of the earth).

Chuvayev, A. P.
AN EXPERIMENT IN CONTROLLING THE DEVELOPMENT OF STRONGLY CONVECTIVE CLOUDS IN NORTHWESTERN EUROPEAN USSR. [1959] 37p.
Order from ATS $64.95 ATS-68L36R

Trans. of Glavnaya Geofiz[icheskaya] Observatoriya [Leningrad]. Trudy.(USSR) 1957, no. 67(129) p. 59-103.

Imyanitov, I. M. and Chuvayev, A. P.
THE PRINCIPAL MECHANISMS OF ELECTRIC CHARGE GENERATION IN STORM CLOUDS (Ob Osnovnom Mekhanizme Elektrizatsii Grozovykh Oblakov) tr. by M. Slade. [1959] [10]p. (foreign text included) 3 refs. Trans. no. 4287.
Order from LC or SLA mi$1.80, ph$1.80 60-15372

Trans. of Meteorologiya i Gidrologiya (USSR) 1955, no. 4, p. 34-36.

The intensity of the electric field was measured at first in thick (about 3500 m) cumulus clouds developing naturally (i.e., in clouds of a convective nature which have not yet reached the stage of ice formation and yield neither rain nor precipitations that evaporate before they reach the ground), and subsequently in the same clouds when solid phase particles (ice particles) are artificially created in them. The average water content (quantity of liquid water in one cubic meter in the upper portion of these clouds found in the first determinations was 1 to 1.5 g/cu m. In the central portion of the cloud the water content was naturally much higher. The bottom of the clouds was at 1700 m above sea level, and their top at about 5200 m. The average velocity of the vertical currents recorded during the flight in the upper portion of these clouds was 5 to 8 m/sec. The average fields in these clouds prior to formation of ice particles had an intensity of approximately 15 v/cm. The $(E_{max} - E_{min} / E_{med})$ ratio was up to 0.5. After appearance of an ice phase in the clouds the field intensities began to increase. Within 2 to 4 minutes the average field had intensified to 46 v/cm, and the coefficient of inhomogeneity had increased to 2.3. After a few minutes large raindrops started to fall from the clouds. Soon the rain intensified and fell over a 30 sq km area.

Kolokolov, V. P.
THUNDERSTORM ACTIVITY AND THE RADAR CHARACTERISTICS OF A CLOUD. [1959] 3p.
Order from ATS $4.50 ATS-29M38R

Trans. of Glavnaya Geofiz[icheskaya] Observatoriya [Leningrad]. Trudy (USSR) 1957, no. 67(129) p. 129-130.

Krasikov, P. N. and Chikirova, G. A.
THE EFFECT OF ADMIXTURES OF AMMONIUM CHLORIDE ON THE STABILITY OF WATER FOG. [1959] 5p.
Order from ATS $10.50 ATS-74M37R

Trans. of Glavnaya Geofiz[icheskaya] Observatoriya [Leningrad]. Trudy (USSR) 1958, no. 82 [144] p. 41-44.

Muchnik, V. M.
SOME RADAR CHARACTERISTICS OF RAINSTORM AND THUNDERSTORM CELLS. [1959] 5p.
Order from ATS $9.00 ATS-67L36R

Trans. of Tsentral['naya] Aerolog[icheskaya] Observatoriya. Trudy (USSR) 1958, no. 20, p. 82-87.

Nasilov, D. N.
RADIOMETEOROLOGY; RADIO METHODS IN METEOROLOGY. [1959] [200]p. 160 refs. F-TS-9818/V.
Order from LC or SLA mi$8.70, ph$3.30 60-13089

Trans. of mono. Radiometeorologiya; Radiometody v Meteorologii. Moscow, 1956, 215p.

Contents:
Methods of free atmosphere investigation
Electromagnetic fields in the atmosphere
  Atmospherics
  Observation of reflected pulses
  Measurement of the electromagnetic field intensity of radio stations
Physical fundamentals of radio meteorology
  General remarks
  The role of vaporized and fluid-droplet water content
  The role of atmospheric conductivity

Nemchenko, V. I.
THERMOBATTERY FOR MEASURING PULSATIONS IN AIR TEMPERATURE. 15 Jan 60, 8p. 2 refs. JPRS: 2127-N.
Order from OTS $0.50 60-11172

Trans. of [Akademiya Nauk SSSR.] Morskiy Gidrofizicheskiy Institut. Trudy, 1958, v. 13, p. 73-77.

A survey.

Pasternak, N. B., Shurupov, V. I., and Kosenko, N. A.
CASTING IRON IN ALUMINUM ALLOY MOLDS [Lit'ye Chuguna v Formy iz Splava AL-9]. [1959].
Order from LSB $3.50 LSB-107

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 4, p. 24-25.

Shishkov, Yu. A.
NORMAL LINEAR CORRELATIONS OF VECTORS (O Normal'noy Lineynoy Korrel'yatsiy Vektorov) tr. by Marcel L. Weinreich. 17 July 59, 11p.
Order from LC or SLA mi$2.40, ph$3.30 SCL-T-261

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 6, p. 55-58.

The theory of the correlation of vector's is presented in a form intended for hydrometeorologists that have access to electronic computers and a knowledge of mathematical statistics and of the tensor computations. Discussions are presented on tensors of regression and correlation, and on the correlation index. A method is given for the correlation of two random vectors, and an example is included of a correlation of the wind vector with the ice drift.

Shupyatskiy, A. B.
RADAR MEASUREMENT OF THE MEAN DROP SIZE AND THE WATER CONTENT IN HEAVY RAINSTORMS. [1959] 9p.
Order from ATS $13.80 ATS-65L36R

Trans. of Tsentral['naya] Aerolog[icheskaya] Observatoriya. Trudy (USSR) 1958, no. 20, p. 58-66.

Stepanenko, V. D.
IMPROVING THE METEOROLOGICAL TARGET DETECTION EFFICIENCY OF THE "KOBAL'T" RADAR. [1959] 5p.
Order from ATS $8.45 ATS-66L36R

Trans. of Tsentral['naya] Aerolog[icheskaya] Observatoriya. Trudy (USSR) 1958, no. 20, p. 67-72.

Yakovlev, V. I.
AN ANALYTICAL METHOD OF PROCESSING THE DF DATA OF A DRIFTING AUTOMATIC RADIO-METEOROLOGICAL STATION [Analiticheskiy Sposob Obrabotki Dannykh Pelengovaniya Dreyfuyushchikh Avtomaticheskikh Radiometeorologicheskikh Stantsiy]. 21 Dec 59, 4p. 1 ref. JPRS: L-1145-N.
Order from OTS $0.50 60-11133

The geographical coordinates of a drifting automatic radio-meteorological station are determined through the parameters of two great circles on the terrestrial sphere.

Geodesy

Lyapunov, A. A.
CRITERION (TEST) FOR VERIFYING THE INTERPRETATION OF GRAVITY OBSERVATIONS. Aug 59 [5]p. 4 refs. MCL-34/V.
Order from LC or SLA mi$1.80, ph$1.80 60-15509

Trans. of Akademiya Nauk SSSR. Doklady, 1955, v. 102, no. 2, p. 265-266.

See also 60-15508.

Smolitskiy, Kh. L.
GENERALIZATION OF A CRITERION FOR CHECKING THE INTERPRETATION OF GRAVITY OBSERVATIONS. Aug 59 [5]p. 1 ref. MCL-33/V.
Order from LC or SLA mi$1.80, ph$1.80 60-15508

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 106, no. 2, p. 237-238.

It is shown that the test of A. A. Lyapunov (Akad. Nauk SSSR Doklady 102: 265, 1955: a translation is available from LC or SLA as 60-15509) can be obtained in a different way, which leads to an alagous criteria for a finite mass of arbitrary form.

Geography

ACTIVITIES IN THE ARCTIC AND ANTARCTIC [NO. 14, 18 Mar 60]. [1960] [13]p. 14 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-15675

Trans. of unevaluated information selected from Russian-language publications.

Ssu, Ya-feng, Ch'en, Meng-hsiung and others.
ARTICLES ON NATURAL GEOGRAPHY, LAND UTILIZATION, GROUND FREEZING AND POPULATION DENSITY OF CERTAIN AREAS IN COMMUNIST CHINA: PRELIMINARY SURVEY OF THE NATURAL GEOGRAPHY OF THE CH'ING-HAI HU AREA; SOME LANDFORM AND LAND UTILIZATION PROBLEMS IN THE K'AI-FENG AREA; GROUND FREEZING IN THE PEIPING AREA; POPULATION DENSITY OF THE NAN-T'UNG SPECIAL DISTRICT IN KIANGSU PROVINCE. 15 Feb 60, 44p. (4 maps omitted) 16 refs. JPRS: 1166-D.
Order from OTS $1.25 60-31053

Trans. of Ti-li Hsüeh-pao (Chinese People's Republic) 1958, [v. 24] no. 1, p. 33-46, 49-58 (extracts), 60-66 (extracts) and 79-82.

Contents:
Preliminary survey of the natural geography of the Ch'ing-hai Hu area, by Ya-feng Ssu, Meng-hsiung Ch'en, Wei-chih Li, and Shih-ming I

Some landform and land utilization problems in the K'ai-feng area, by Hsi-ming Ssu and Jui-chun Ma
Ground freezing in the Peiping area, by Ssu-chung Cheng
Population density of the Nan-T'ung special district in Kiangsu province, by Huan-jung Hu

Geology

Chou, Chin-han.
THE RESULTS AND FUTURE OF SCIENTIFIC RESEARCH IN GEOPHYSICAL PROSPECTING IN COMMUNIST CHINA. 18 Jan 60, 15p. JPRS: 1119-D.
Order from OTS $0.50 60-31023

Trans. of Ti Ch'iu Wu Li K'an T'an (Chinese People's Republic) 1959, no. 9, p. 8-12.

Drwila, St. and Zytka, Jan.
RESULTS OF SEISMIC RESEARCH IN THE CARPATHIAN FORELAND AREA. 24 Oct 58, 7p. JPRS(NY)-L-424.
Order from OTS $0.50 PB 141 320T

Trans. of Nafta (Poland) 1957 [v. 13] no. 10, p. 275-278.

Fedynskiy, V. V.
OUTLOOK FOR DEVELOPMENT OF GEOPHYSICAL PROSPECTING FOR USEFUL MINERAL DEPOSITS IN THE USSR IN 1959-65. 3 Feb 60, 16p. JPRS: L-1193-N.
Order from OTS $0.50 60-11250

Trans. of Sovetskaya Geologiya (USSR) 1959, no. 8, p. 3-13.

Kyukov, A. I.
THE ALL-UNION GEOPHYSICAL CONFERENCE. 8 Feb 60, 12p. JPRS: L-1194-N.
Order from OTS $0.50 60-11251

Trans. of Sovetskaya Geologiya (USSR) 1959, no. 8, p. 160-165.

Topics are noted of papers that were read at the conference, which was held on February 2 to 7, 1959 in Leningrad.

Ma, Ching-chih.
LAND FORMS OF CHANG-CHU-KOU IN CHING-PIEN OF NORTHERN SHENSI. 26 June 59, 12p. JPRS: 786-D.
Order from OTS $0.50 59-11678

Trans. of Ti-li-hsueh Tse-liao (Chinese People's Republic) 1957, no. 1, p. 88-94.

Mineralogy

Kalenov, A. D.
GENETIC TYPES OF SCANDIUM DEPOSITS AND THEIR INDUSTRIAL IMPORTANCE (Geneticheskiye Tipy Mestorozhedeniya Skandiya i ikh Promyshlennoye Znacheniye). 1959, 4p.
Order from RIA $6.00 RIA R-1-1

Trans. of Razvedka i Okhrana Nedr (USSR) 1959 [v. 25] no. 6, p. 3-6.

Lithologic relationships governing scandium distribution are treated, as are geochemical characteristics. Scandium content in certain minerals is listed and an industrial minimum is quoted at 0.02 percent. A genetic classification of scandium deposits is included and mineral associations are noted. Type localities for the various classes are listed. (RIA abstract)

Shcheglov, A. D.
FLUORITE DEPOSITS OF WESTERN TRANS-BAYKAL (O Flyuoritovykh Mestorozhdeniyakh Zapadnogo Zabaykalya). 1959, 5p.
Order from RIA $7.50 RIA R-1-2

Trans. of Razvedka i Okhrana Nedr (USSR) 1959 [v. 25] no. 7, p. 5-9.

Fluorite deposits in western Trans-Baykal are described. The relationship between ore deposition and tectonics is noted and the most favorable tectonic structures are described. The deposits occur in metamorphosed Precambrian rocks, Caledonian granitoids, upper Paleozoic porphyrites and in the sediments of the Gusinoozero suite. Lithologic relationships are noted, as are indicative surface mineral associations and structures. Deposition of the fluorite occurred in stages, evidenced by variation in color, texture and mineralogic relationships. This belt of deposits may extend northeast into the structurally analogous Chitin region. (Research er) International Associates abstract)

Vinogradov, A. P. and Ronov, A. B.
EVOLUTION OF THE CHEMICAL COMPOSITION OF THE CLAYS OF THE RUSSIAN PLATFORM. [1959] 18p.
Order from ATS $24.60 ATS-67M37R

Trans. of Geokhimiya (USSR) 1956, no. 2, p. 3-18.

Oceanography

Alekhina, L. S. and Lugovenko, S. P.
EXPERIMENTAL WORK ON THE ORGANIZATION OF A SHIP'S NETWORK [Opyt Organizatsii Raboty Sudovoy Seti]. 28 Dec 59, 3p. JPRS: L-1153-N.
Order from OTS $0.50 60-11145

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 33-34.

The ship network of the Murmansk Hydrometeorological Service Administration in the Barents Sea consists of 65 stations. They are installed on 8 trawlers in the northern part of the Atlantic Ocean, and on 10 hydrological ships, 31 fish-searching ships, 7 floating fishing bases, and 2 cargo ships of the Ministry of the Navy of the USSR. Observations are also carried out from 7 stations by professional observers. Provisional stations are established on ships used for fishing from time to time. The ship stations are equipped with hydrometeorological instruments by the Navy via the navigation chambers, and the testing of instruments is made by the Testing Office of the Hydrometeorological Service Administration. The instruments are checked after each voyage by the inspectors. A double set of instruments is available on every ship. Telestations are installed on 12 ships. Ships return to harbour only after 1 to 5 months, and are visited by the inspector after every return. A full inspection of every ship is made 2 or 3 times a year, and a record is set up. The work for the ship station is controlled by the inspector during the voyage. The inspectors are present daily at the service relief in the weather office. If errors are detected, the inspectors give instructions to the navigation observers by radio. Reception of information from ships is not yet regular at present. The measures taken in this respect had the consequence that 48 stations are already working "well", and only 17 "satisfactorily". Early in 1958, the Administration of the Fishing Industry of the Murmansk sovnarkhoz worked out a wage system for the observing personnel to encourage good observation results, and their reporting in due time to the coast.

Dremlyug, V. V.
ON RADAR SURVEYING SEA CURRENTS AND ICE. 8 Feb 60, 5p. 1 ref. JPRS: L-1200-N.
Order from OTS $0.50 60-11261

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 10, p. 38-39.

General methods are recommended.

Physics of the Atmosphere

Grigauz, K. I.
ROCKET MEASUREMENTS OF THE ELECTRON CONCENTRATION IN THE IONOSPHERE USING AN ULTRA-SHORTWAVE DISPERSION INTERFEROMETER. [1960] 6p. 8 refs.
Order from MDF $3.00 MDF G-169

Trans. of Iskusstvennyye Sputniki Zemli (USSR) 1958, no. 1, p. 62-66 (first pub. in Akademiya Nauk SSSR. Doklady, 1958, v. 120, no. 6, p. 1234-1237).
Other translations are available from OTS $0.50 as 59-11940, TG 230-T72, 12 Mar 59 [8]p.; from OTS $0.50 as 59-11375, JPRS(DC)-L-1207, 11 June 59, 7p. and from LC or SLA mi$1.80, ph$1.80 as 59-19137, DSIR LLU M. 256 [1959] [4]p.

Analysis of preliminary rocket sounding data obtained from altitudes up to 473 kilometers indicates that there is no sharply defined E-layer. Altitude distribution curves of electron densities based on data gathered from a number of rocket flights at different times are compared.

Krassovskiy, V. I., Shklovskiy, I. S. and others.
DETECTION IN THE UPPER ATMOSPHERE OF ELECTRONS WITH ENERGIES ~10 kev BY MEANS OF THE THIRD SATELLITE (SPUTNIK) (Obnaruzheniye v Verkhney Atmosfere Elektronov s Energiey Okolo 10 Kev na tret'yem Sputnike) tr. by A. Pingell. 1960 [14]p. 26 refs. N R L Trans. no. 773.
Order from OTS $0.50 60-21073

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1959, no. 8, p. 1157-1163.

Results are presented of measurements of the electron fluxes with energies ranging from 10 to 40 Kev. These measurements were carried out with the aid of the third Soviet artificial earth satellite (sputnik), using two fluorescent shields (ZnS and activated Ag) covered with thin absorbing aluminum foils of different thickness, the emission of which was recorded by photoelectron multipliers. The intensity of the fluxes increase sharply with decrease of energy. The energy flux at night at high latitudes reaches several tens of erg/cm^2 · sec · sterad. (See also 60-21182)

Krassovskiy, V. I., Shklovskiy, I. S. and others.
DETECTION OF ELECTRONS WITH ENERGIES OF ABOUT 10 KILOELECTRON VOLTS IN THE UPPER ATMOSPHERE WITH THE AID OF THE THIRD "SPUTNIK" (SATELLITE) (Obnaruzheniye v Verkhney Atmosfere s Pomoshch'yu Tret'yego Sputnika Elektronov s Energiyey Okolo 10 Kev) tr. by A. Pingell. Dec 59, 7p. 18 refs. N R L Trans. no. 774.
Order from OTS $0.50 60-21182

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 127, no. 1, p. 78-81.

See 60-21073

Megrelishvili, T. G.
ON THE POSSIBILITY OF INVESTIGATING AEROSOL LAYERS BY THE CREPUSCULAR METHOD, tr. by G. D. Heath. 19 June 59 [9]p. 15 refs. Porton Trans. no. 227; M785.
Order from LC or SLA mi$1.80, ph$1.80 59-22606

Trans. of *Akad[emiya] Nauk SSSR. Izv[estiya]. Ser[iya] Geofiz[icheskaya] 1958, no. 4, p. 560-563.

A criticism is presented of the method employed by E. K. Bigg in interpreting his crepuscular observations concerning dust layers in the atmosphere (Nature, no. 4498, 1956).

Pletnev, V. D.
PENETRATION OF FAST CHARGED PARTICLES FROM THE UPPER ATMOSPHERE INTO THE

IONOSPHERE (Proniknoveniye Bystrykh Zaryazhennykh Chastits iz Verkhney Atmosfery v Ionosferu) tr. by A. Pingell. 3 Dec 59 [5]p. 9 refs. N R L Trans. no. 771.
Order from OTS $0.50 60-21043

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1959, no. 8, p. 1164-1166.

The oscillating motion of charged particles captured by the terrestrial magnetic field is examined. The direction of motion in fluxes of such oscillating particles will have a sharply expressed spatial anisotropy as a result of the absorbing action of the lower atmospheric layers.

ENGINEERING

DIGEST OF SOVIET TECHNOLOGY, 1960 [VOL. 1] NO. 11.
Order from EIS $18.00/Surface mail
$22.00/Airmail

Consists of translations on recent technological developments in the USSR and East European countries selected from periodical and non-periodical literature from these countries.

Englin, A. N., Skribnskaya, M. B., and Trakhtenberg, E. A.
METHOD FOR OBTAINING THE INSECTICIDES CHLORDANE AND HEPTACHLOR. [1959].
Order from LSB $2.50 LSB-106

Trans. of Russian patent 110387, issued 22 May 57.

Kudymov, B. Ya. and Ushakov, A. V.
PHOTOELECTRIC INSTRUMENT FOR MEASURING LUMINESCENCE ALONG DRILL-HOLE WALLS. (Fotoelektricheskiy Instrument dlya Issledovaniya Luminestsentsii Stenok Skvazhin). 1959, 3p.
Order from RIA $4.50 RIA R-1-3

Trans. of Razvedka i Okhrana Nedr (USSR) 1959 [v. 25] no. 7, p. 34-36.

An instrument for measuring luminescence is described. The device is illustrated and data obtained from its tests are included. The photoelectric instrument is useful in situations where the efficiency of electric logging is reduced by high salinity. (RIA abstract)

Yarovoy, I. M.
DETERMINATION OF THE METHANE CONTENT OF COAL SEAMS (Opredeleniye Metanonosnosti Plastov Uglya). [1959] [12]p. 1 ref. M 793.
Order from LC or SLA mi$2.40, ph$3.30 59-22599

Trans. of Ugol' (USSR) 1947, v. 22, no. 12, p. 9-13.

Determination of the methane-content of coal seams using hermetically sealed flasks does not reflect the true methane-content, which increases as one passes from the mine face to the interior of the coal mass, up to a certain limit. The true methane-content of coal can be determined with isotherms of desorption and gas-release established in the laboratory as a function of pressure and by means of measurements of methane pressure in holes drilled in the seam at depths beginning at one meter and going beyond the drainage zone. Using this method it will be possible to determine the methane-capacity of a seam in situ, the level of drainage of the zone near the mine face, and changes in it as a function of the rate of progress of the cutting face Most of the methane (20 cubic centimeters per gram) in the sample from the "Derezovka" K_3 seam, which is dangerous because of sudden evolution of gas, is sorbed at a pressure of 10 atmospheres, while in the sample from the "Smolynninovskiy" seam it is absorbed at pressures up to 20 atmospheres. At the same pressures the quantity of free methane is very small. At pressures of 80 to 100 atmospheres the capacity of coal to sorb methane almost disappears. With further pressure increases methane is not sorbed, but is compressed, being in a free state in the fissures and pores of the coal. In the portions of the coal mass near the cutting face there is little pressure, and the methane in them is generally in the sorbed state. The equilibrium between sorbed and free methane is maintained apparently by means of methane which is constantly moving out of the interior of the coal mass as a result of the pressure difference between the coal mass and the cutting face.

Aeronautical Engineering

THE SNECMA C-450 "COLEOPTER" (BEETLE) (S. N. E. C. M. A. C.-450 "COLEOPTERE") tr. by W. E. C. [1959] [4]p. (3 figs. omitted). H-3104 C.
Order from OTS $0.50 59-21030

Trans. of Air Revue (Belgium) 1958, July, p. 383.

The plane has an "ATAR EV" jet, and therefore a thrust of 3,700 kg. According to approximative measurements, it has a length of 9.90 meters and a height (in line of flight) and "wing-span" of 5.60 meters. The maximum diameter of its wing is about 4.15 meters, while it is only 3.80 meters at its entrance and exit. The cabin containing the folding seat, flanked with two air inlets, is located in front of the cylinder forming the cap of the "ATAR EV". An additional air inlet is situated under its lower lip. The bottom and sides of the fuselage contain windows permitting groundward vision. The wings are attached to the fuselage by means of four slightly curved pins. The aircraft is placed in the starting position with the aid of a trailer which makes it possible to place the machine in a horizontal position in order to facilitate its inspection and repair. The "Coleopter" is supported by two shafts which engage the fittings of a semi-circular fork. When the "Coleopter" is on the ground it rests on four small wheels.

Karmanova, L. and Berenson, S.
PREVENTION OF CORROSION ON THE SKIN OF AIRCRAFT (Preduprezhdeniye Korrozii Obshivki Samoleta). Jan 60, 5p. RTS no. 1320.
Order from LC or SLA mi$1.80, ph$1.80 60-15066

Trans. of Grazhdanskaya Aviatsiya (USSR) 1958 [v. 15] no. 3, p. 23.

The main varieties of corrosion and their causes are discussed. Proper methods of handling the skin in the cleaning and washing process are described.

Leontyeva, V. P., Slonimskiy, G. L., and Dranovskiy, M. G.
TESTING OF RUBBERS USED AS SEALS FOR UNITS OF AIRCRAFT HYDRAULIC SYSTEMS UNDER ISOTHERMAL HYDRAULIC COMPRESSION (PRESSURE FROM ALL DIRECTIONS) [AND] INVESTIGATION OF RUBBER COMPENSATORS (SHOCK ABSORBERS). [1959] [61]p. (38 figs. omitted) 15 refs. F-TS-9678/III.
Order from LC or SLA mi$3.90, ph$10.80 59-19477

Trans. of Issledovaniya Nekotorykh Rezinovykh i Plasticheskikh Materialov (USSR) 1957, no. 93, p. 5-20 and 39-63.

Mil, M. L.
HELICOPTERS (Vertolety). [1959] [63]p. F-TS-9638/V.
Order from LC or SLA mi$3.90, ph$10.80 59-16059

Trans. of [Vsesoyuznoye Obshchestvo po Rasprostraneniyu Politicheskikh i Nauchnykh Znaniy] Seriya 4 (USSR) 1957, no. 14, p. 1-39.

Contents:
History of the development of helicopter construction
The appearance and development of autogyros
New phase in the development of helicopters
Struggle to obtain dependability in the designing of helicopters
Single-rotor helicopters
Helicopters of other systems
Application of helicopters to civilian use
Economy of helicopter transportation
Military use of helicopters
Outlook for the development of helicopter design
Helicopter-aircraft ("convertiplanes")

Chemical Engineering

Charvat, V.
THE GRINDING OF COAL FOR THE PRODUCTION OF COKE. II. DISINTEGRATING AND IMPACT HAMMER TYPE MILLS. [1960].
Order from BISI £6 15s BISITS 1581

Trans. of Paliva (Czechoslovakia) 1956 [v. 36] no. 6, p. 185-192.

The effect was described of different variables affecting the output and fineness of grinding with disintegrator type and impact hammer mills. The main considerations were established and expressed with the aid of tables and graphs. Conclusions were drawn from the results obtained regarding the suitability of different types of coal and the advisability of taking certain action to improve grinding and control. (Author)

Frolov, A. G.
IMPROVEMENT OF THE MINE STATION, HOISTING AND UNDERGROUND TRANSPORTATION THROUGH THE APPLICATION OF HIGH PRESSURE HYDRAULIC TRANSPORT (Primeneniye Vysokonapornykh Gidrotransportnykh Ustanovok dlya Korennogo Usovershenstvovaniya Poverkhnosti Shakht, Podemov i Podzemnogo Transporta). [1959] [12]p. 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-19353

Trans. of Ugol' (USSR) 1959 [v. 34] no. 6, p. 10-15.

The following plan is proposed as a result of experiments conducted between 1951 and 1958. The coal, concentrated in the vicinity of the mines, should be crushed to a tolerance of 3 to 5 mm, then with the aid of piston pumps or feeding machines and pumps, it will be transported by high-pressure hydraulic pipeline to the coking plant. The coal drying will be performed at the coking plants, rather than in the preparation plants of the different coal basins.

Lebedev, N. N.
PROBLEM LABORATORIES BEGIN SCIENTIFIC PRODUCTION. [1960] 20p. JPRS: 2187-N.
Order from OTS $0.50 60-11236

Trans. of Vestnik Vysshey Shkoly (USSR) 1959 [v. 17] no. 9, p. 57-69.

Activities of the problem laboratories are summarized. The laboratories considered deal with the application of isotopes and radioactive emanations to chemistry and chemical technology, electrosynthesis of organic and inorganic compounds, the synthesis and application of ion exchange resins, the investigation of mass transfer processes, the synthesis of intermediate compounds, and research on heat-resistant glasses and high-polymers.

Civil Engineering

CONSTRUCTION IN THE USSR: SELECTED TRANSLATIONS. 13 Oct 59, 47p. JPRS: 1946-N.
Order from OTS $1.25 59-13939

Contents:
Part I. Building Materials Industry
Raise the Technical Level of Production in the Building Materials Industry Steadily, by I. I. Labed'. Trans. of Stroitel'nyye Materialy (USSR) 1959 [v. 5] no. 7, p. 1-8.

The New System of Administration in the Building Materials Industry, by T. O. Shakhbazyan. Trans. of Tsement (USSR) 1959 [v. 25] no. 3, p. 1-2.

Gigantic Leap Forward, by M. Preskuryakov. Trans of Stroitel'naya Gazeta (USSR) 1959 [v. 23] 19 Aug, p. 2.

Methods for Improving the Construction of Industrial Buildings and Structures and Reducing their Cost, by F. I. Gusov. Trans. of Promyshlennoye Stroitel'stvo (USSR) 1959 [v. 37] no. 7, p. 4.

Utmost Reduction in the Cost of Precast Concrete, by B. Budanov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 1, p. 82-85.

Mass Production of Brick-Concrete Panels Organized, by M. Dikerman. Trans. of Arkhitektura i Stroitel'stvo Moskvy (USSR) 1959, no. 7, p. 14-15.

Implementation of the Decisions of the Plenum of the Central Committee, CPSS. Trans. of Steklo i Keramika (USSR) 1959 [v. 16] no. 8, p. 1-3.

Part II. Construction

Lift the Construction Industry to a New and Higher Level, by V. Kacherenko. Trans. of Stroitel'naya Gazeta (USSR) 1959 [v. 23] 9 Aug, p. 2-3.

DSK-1 [Polyustrov Housing Construction Combine] Builds, by G. L. Kopelevich and B. D. Popov. Trans of Byulleten' Tekhnicheskoy Informatsii (USSR) 1959, no. 7. p. 7-11.

PLANS FOR THE CONTROL OF THE CH'AO, CH'U AND HUAN BASINS. 24 Feb 60, 11p.
JPRS: 2234.
Order from OTS $0.50 60-11314

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958 [v. 9] Aug, p. 342-344.

The region is located on the left bank of the lower Yangtze River and lies between 30° and 32°N and 116° 119°E. It is bordered by the Yangtze River on the southeast, and by the Ta-pieh, Huai-yang Mountains, and Huai River basic on the north and west. The total area of the region is 34,500 square kilometers, 94% of which is located in Anhwei Province. The control plans include the elimination of drought and flood, the promotion of agricultural production, the utilization of water power, and the development of local industry.

SOVIET CONSTRUCTION AND BUILDING MATERIALS INDUSTRY: SELECTED TRANSLATIONS.
6 Oct 59, 43p. JPRS: 1923-N.
Order from OTS $1.25 59-13909

Contents:

Part I. Building Materials Industry

Improve Precast Concrete Production Techniques, by M. Pishchik. Trans. from Stroitel'naya Gazeta (USSR) 1959 [v. 23] 26 June, p. 2.

Some Prospects for the Automation of Building Materials Production Processes, by A. Zimin. Trans. of Ekonomika Stroitel'stva (USSR) [1959] no. 6, p. 24-28.

Reconstruction of Cement Plants. Trans. from Stroitel'naya Gazeta (USSR) 1959 [v. 23] 10 July, p. 1,

First Multi-Story Building of Prefabricated Brick Panels Erected. Trans. from Stroitel'naya Gazeta (USSR) 1959 [v. 23] 22 July, p. 4.

Potential for Saving Materials in Transport Construction, by A. Kondrashov. Trans. of Ekonomika Stroitel'stva (USSR) 1959, no. 6, p. 43-52.

Construction and the Construction Industry in the Belorussian SSR in 1959-65, by V. Kamenskiy. Trans. of Kommunist Belorussii (USSR) 1959 [v. 31] no. 5, p. 24-29.

Opportunities for Increasing Labor Productivity in Construction, by A. Treyfeldt. Trans. of Kommunist Estonii (USSR) 1959 [v. 15] no. 5, p. 41-49.

Prospects and Effectiveness of Utilizing Plastics in Construction, by N. Maykov. Trans. of Ekonomika Stroitel'stva (USSR) 1959, no. 6, p. 37-40.

Installation of Vinyl Plastic Pipelines, by A. K. Gefding. Trans. of Novaya Tekhnika Montazhnykh i Spetsial'nykh Rabot v Stroitel'stve (USSR) 1959 [v. 21] no. 7, p. 14-16.

Important Factor in the Further Industrialization of Construction. Trans. of Stroitel'nyye Materialy (USSR) 1959 [v. 5] no. 6, p. 1-2.

Part II. Construction Industry

Value and Cost in Construction, by V. Uspenskiy. Trans. from Stroitel'naya Gazeta (USSR) 1958 [v. 22] 8 July, p. 4.

Statute Concerning the Formation of Groups of Individual Home-Builders. Trans. from Stroitel'naya Gazeta (USSR) 1959 [v. 23] 19 July, p. 4.

Savings in Transportation Cost in Construction Through Reduction of the Weight of Buildings. Trans. of Promyshlennoye Stroitel'stvo (USSR) 1959 [v. 37] no. 6, p. 30-33.

Bolkowski, Jerzy and Markiewicz, Ryszard.
THE FIVE-YEAR PLAN FOR THE CEMENT INDUSTRY. 17 Oct 58, 18p. JPRS(NY)-L-403.
Order from OTS $0.50 PB 141 310T

Trans. of Cement, Wapno, Gips (Poland) 1957, v. 13/22, no. 1, p. 1-7.

French, William Gerald.
PORTABLE PARTITION UNIT AND LOCKING MEANS THEREFOR, tr. by F. H. B. 18 Jan 60, 15p. (10 figs. omitted) 1 ref.
Order from LC or SLA mi$2.40, ph$3.30 60-15093

Trans. of French patent 1,142,370, gr. 7, cl. 3, Int. cl. E 04 b, appl. 23 May 55, granted 1 Apr 57, pub. 17 Sep 57 (appl. filed in U. S. A. 26 Nov 54).

The invention relates to portable devices for assembling panels with posts. The panels consist of opaque lower elements whose opposite lateral edges are releasably fastened to the posts, and transparent or translucent upper elements whose lower edges are releasably supported by the upper edges of the lower elements, and whose opposite lateral edges are connected with the posts. The invention provides means for connecting in a quick and easy manner the opposite vertical lateral edges of the upper panel elements with the posts, as well as elements that engage with the posts so as to hold the panel-supporting devices in engagement with the posts; means for facilitating the mounting of the upper panel elements, engaging them

vertically by sliding along, between them and the opposite vertical edges of the panel elements, slide elements in vertical sliding engagement between the edges of the upper panel elements and the posts; and finally, elements holding the panels, very simple in concept, economical in structure, and very efficient in use.

Kierski, Boleslaw, Korngut, Josef, and Zubelewicz, Michal
MAJOR DIRECTIONS IN THE PRODUCTION OF CONSTRUCTION MATERIALS IN THE CURRENT FIVE-YEAR PLAN. 29 Sep 58, 32p. JPRS(NY)-L-349.
Order from OTS $0.50 PB 141 242T

Trans. of Materialy Budowlane (Poland) 1957, v. 12, no. 10, p. 289-298.

Koller, Ernst.
DISMOUNTABLE WALL WITH VERTICAL METAL POSTS, tr. by F. H. B. 26 Jan 60, 11p. (5 figs. omitted).
Order from LC or SLA mi$2.40; ph$3.30 60-15100

Trans. of Swiss patent 281,053, cl. 4a, appl. 24 Apr 50, registered 29 Feb 52, pub. 3 June 52.

The wall is characterized in that the posts have a profile which on at least two sides has outwardly open grooves.

Li, P'ei-fu.
T'AO HO PROJECT. 14 Dec 59, 12p. JPRS: 2075-N.
Order from OTS $0.50 60-11125

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958, v. 9, no. 12, p. 547-549.

The project for diversion of the Tao Ho to an easterly course for purposes of irrigation and power engineering is described.

Mayer, Friedrich and Kretschmann, Bernhard.
HEAT INSULATING METAL PLATE FOR BUILDING CONSTRUCTION, tr. by C. P. 4 Feb 59, 10p. (12 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13274

Trans. of French patent 884329, gr. 7, cl. 3, appl. 21 July 42, granted 19 Apr 43, pub. 10 Aug 43 (2 appl. for patent and a patent of addition filed in Germany, patent 26 July 41, patent of addition 23 Oct 41) by Leichtmetallbau Regensburg G. m. b. H., Germany.

The plate light sheet metal is composed of two halves in the form of compartments open on one side, joined by connecting means which, at least at the points of contact with the halves of the plate, consist of a non-metallic material, for example of synthetic resin, and keep at a distance from one another the halves of the plate turned toward one another. The edges of the two halves of the plate are engaged in pairs of bars of synthetic material and reinforced, if need be, by metal which are pressed against one another and against the edges of the plate halves by screws. The edges of the two halves of the plate are bent toward the interior at an angle of about 45° and the bars which serve for their assemblage likewise have suitable bent edges so that the means of assemblage are not projected above the external surface of the construction plate. The assembling bars of synthetic material are cemented to one another at their points of contact or welded by their metal parts. A single bar is disposed between the halves of the plate and forms with its edges a closed assemblage or again a rigid frame composed of such bars. The halves of the plate engage by chamfered edges in grooves in the assembling bars and the interstices remaining open are filled with a mass of cement, for instance by a thermoplastic synthetic resin.

Sokolov, A. A.
DEVELOPMENT OF HYDROLOGY IN THE CHINESE PEOPLE'S REPUBLIC. 29 Jan 60, 8p. JPRS: L-1179-N.
Order from OTS $0.50 60-11214

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 46-49.

A survey.

Szejwac, Adam
INCREASING THE EFFECTIVENESS OF INVESTMENTS IN THE CONSTRUCTION MATERIALS INDUSTRY. 27 Aug 58, 9p. JPRS(NY)-L-314.
Order from OTS $0.50 PB 141 199T

Trans. of Materialy Bubowlane (Poland) 1956, v. 11, no. 1, p. 9-12.

Electrical and Electronic Engineering

*AVTOMATIKA I TELEMEKHANIKA (USSR) 1959, V. 20 (Automatics and Telemechanics). [1960]
Order from OTS $0.50, $3.00/6 mo.
Foreign $0.75, $4.50/6 mo.

No. 9, p. 1153-1310, PB 141 096T-15
No. 11, p. 1441-1558, PB 141 096T-14
No. 12, p. 1561-1711, PB 141 096T-16

Consists of abstracts in English.

ELECTRIC DUST SEPARATOR, tr. by F. H. B. 13 Nov 59, 7p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13072

Trans. of French patent 877,056, gr. 14, cl. 6, appl. 18 Nov 41, granted 24 Aug 42, pub. 28 Nov 42 (2 appl. for pat. filed in Germany, viz., 22 Nov and 23 Dec 40) by Siemens-Lurgi-Cottrell Elektrofilter-Gesellschaft M. B. H. für Forschung u[nd] Patentverwertung, Germany.

The spacing of the electrodes and the velocity of the gas in the precipitation zone free from the spouting discharges are chosen in such a way that the Reynolds number therein remains below about 16,000 and a laminar flow between the electrodes is assured. Since there are no spouting discharges in the condensation or precipitation field and consequently no turbulence can originate, the laminar flow is not disturbed from the moment on when it has been established. Therefore the efficient field length, for the same degree of purification, is reduced.

ELECTRIC TECHNOLOGY U. S. S. R., 1959, VOL. 3, P. 313-461. Feb 60, 1v.
Order from PP $14.00, $56.00/year

Trans. of Elektrichestvo (USSR) 1958, no. 7, p. 14-19, 25-30, 42-45 and 55-56; no. 8, p. 5-11, 37-41, 46-49 and 75-79; no. 9, p. 1-7, 30-34, 39-42 and 47-52. Abstracts are included of the papers which are not translated in full.

*ELEKTROSVYAZ' (USSR) 1958 [V. 12] NO. 8, P. 3-80 (Electrical Communications). [1960] 1v. SOV-106-59-8-(1-12)/12.
Order from OTS $0.60, $3.50/6 mo. PB 141 099T-18
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

RADIO ENGINEERING, 1959, VOL. 14, NO. 4. Feb 60, 114p.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Radiotekhnika (USSR) 1959, v. 14, no. 4, p. 3-[80].

*RADIOTEKHNIKA (USSR) 1959, V. 14, NO. 9, P. 3-81 (Radio Engineering) [1960] 1v. SOV-108-14-9-(1-13)/13.
Order from OTS $0.50, $3.00/6 mo. PB 141 105T-16
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

*RADIOTEKHNIKA I ELEKTRONIKA (USSR) 1959, V. 4, NO. 12, P. 1951-2100 (Radio Engineering and Electronics). [1960] 1v. SOV-109-4-12-(1-25)/25.
Order from OTS $0.70, $4.00/6 mo. PB 141 106T-20
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

Avilov, G. V.
METHODS OF IMPROVING THE QUALITY OF THE SURFACE OF MAGNETIC SOUND CARRIERS. [1959] 11p. 5 refs. T-3086.
Order from LC or SLA mi$2.40, ph$3.30 60-14174

Trans. of Tekhnika Kino Televideniya (USSR) 1957, no. 6, p. 74-78.

Methods of improving the quality of the surface of sound carriers used by various companies, as well as some technological devices for obtaining a magnetic layer with a good glossy surface, are described. (Author)

Ch'en Hsing-pi.
ON THE PROBLEMS OF STORAGE TIME OF DRIFT TRANSISTOR OPERATING IN SATURATION REGION. 11 Jan 60, 33p. 9 refs. JPRS: L-1160-N.
Order from OTS $1.00 60-11176

Trans. of Acta Physica Sinica (Chinese People's Republic) 1959, v. 15, no. 7, p. 353-367.

An equivalent circuit of transistors operating in saturation region is suggested. This circuit contains a transistor operating in active region and a diode biased in forward direction. By using this equivalent circuit, the physical meaning of storage time of transistors may be explained more intuitively. With this, the storage time in drift transistor, which is common base connected, has been investigated. By solving the continuity equation, the steady state and the transient components of the densities of minority carriers in diode near the p-n-junction is obtained. By setting these two components equal in magnitude and opposite in sign, we get a formula, from which the storage time may be determined. The storage time in some special cases has been calculated. The results show that the storage time depends upon the life time of minorities and the surface recombination velocities both in base region and in collector region. This may be a guide for design a transistor with more short storage time. (Author)

Chu, Yen-lung.
ELECTRIC POWER CONSTRUCTION RESEARCH AND TECHNIQUES IN COMMUNIST CHINA. 17 Feb 60, 7p. JPRS: 2248.
Order from OTS $0.50 60-11300

Trans. of K'o Hsüeh Hsin Wen (Chinese People's Republic) 1959, no. 32, p. 3-4.

A survey.

Drabkin, A. L.
MULTIDIPOLE ANTENNA OF ROTATING POLARIZATION. [1959] 5p.
Order from MDF $2.50 MDF D-132

Trans. of *Radiotekh[nika] (USSR) 1959, v. 14, no. 8, p. 3-7.

A new, slightly-directed antenna of rotating polarization, proposed by the author, is described. The antenna consists of horizontal and vertical dipoles with currents in definite phase relations. The antenna field intensity has a rotating polarization which is almost circular in all directions in the space. The directivity pattern in any plane passing through the antenna axis is a cardiod, which guarantees the surveyal of approximatley a hemisphere of the space. (Author)

Grineva, K. I.
SURFACE WAVE ANTENNA WITH A SWINGING BOOM, tr. by Morris D. Friedman. Dec 59 [12]p. 1 ref. AFCRC-TN-60-105; G-165.
Order from LC or SLA mi$2.40, ph$3.30 60-15453

Trans. of *Radiotekhn[ika] (USSR) 1959, v. 14, no. 10, p. 15-22.

The possibility is considered of constructing a double surface wave antenna. The peculiarities of double antennas are investigated: the narrowing of the directivity pattern and the swinging of the beam because of the change in phase of the supply voltage. Results are presented of an experimental check of a circular double surface wave antenna with a small phase velocity lag as are also certain computational formulas. The experimental development of an apparatus in the form of a radial line to excite surface wave antennas is also described. (Author)

Ivanov, V. N. and Kubikov, V. V.
PROTECTIVE SCREENING OF LIGHT-CURRENT CABLES AGAINST DANGEROUS INTERFERENCE FROM EFFECTS OF 110 kV CABLES (Zashchitnoye Yekranirovaniye Slabotochnykh Kabeley ot Opasnogo Vliyaniya Kabeley 110 kV). Dec 59, 17p. RTS no. 1217.
Order from LC or SLA mi$2.40, ph$3.30 60-13434

Trans. of Elektricheskiye Stantsii (USSR) 1958 [v. 29] no. 9, p. 40-43.

A proposal is made to lower the dangerous electromagnetic effect of 110-kv cables on signalling and communication cables, by using additional screening in the form of a separate steel tape in contact with the light-current cable. Calculation shows that the method makes completely unnecessary the use of dischargers on the conductors of light-current cables.

Jakubowski, J. L.
ELECTRIC POWER ENGINEERING MEETING OF THE POLISH ACADEMY OF SCIENCES ORGANIZED TOGETHER WITH THE ASSOCIATION OF POLISH ELECTRICAL ENGINEERS, 19-22 MAY 1958. 23 Oct 58, 4p. JPRS(NY) rept. no. 825.
Order from OTS $0.50 PB 141 318T

Trans. of Przeglad Elektrotechniczny (Poland) 1958, v. 34, no. 2/3, p. 45.

Kuhrt, Friedrich
PROPERTIES OF HALL-EFFECT GENERATORS (Eigenschaften der Hallgeneratoren) ed. and tr. by F. A. Raven, Science Translation Service. Dec 57 [21]p. 6 refs. STS-274; Bureau of Ships Translation 645.
Order from LC or SLA mi$2.70, ph$4.80 59-12033

Trans. of Siemens Zeitschrift (Germany) 1954, v. 28, no. 8, p. 370-376.

A survey of the electrical properties of Hall-effect generators is given. The secondary effects, which accompany the actual Hall effect, are discussed exhaustively and methods are discussed with the aid of which it is possible to extensively eliminate or suppress these disturbing secondary effects. By imbedding and grinding-thin units, the output voltage of a Hall-effect generator may be increased appreciably. (Author)

Lesota, S. K.
ON A METHOD OF MEASURING THE MUTUAL CORRELATION OF AMPLITUDE AND FREQUENCY FLUCTUATIONS OF A REAL GENERATOR BY THE BERSHTEIN METHOD. [1959] 8p. 8 refs.
Order from MDF $4.00 MDF L-131

Trans. of Moscow U. Vestnik. [Seriya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959, v. 14, no. 1, p. 109-116.

In an analysis of the influence of frequency dispersion of the transmitting line on a sinusoid with random amplitude and phase modulation, the expression
$$V_2(t) = V_0 [1 + m(t - \tau)] \sin [\omega_0 t - \rho_0 l + \phi(t - \tau)]$$
for the output signal of a delay line with linear frequency dispersion was derived which shows that the delay time for the fluctuating components is a group delay time at the fundamental frequency ω_0, i.e., the fluctuations seem to lag behind the phase of the carrier frequency ω_0. This can be explained by the spectral components of the oscillations, found by using the Fourier integral, being certain averages in time. The group delay time for amplitude and frequency fluctuations thus obtained enters into an expression that was derived for the spectral density of the total signal, in agreement with measurements presented by V. S. Troitskiy and V. V. Khrulev (Radiotekh. i Elektron. 1: 831, 1956).

Meinke, Hans Heinrich.
ARRANGEMENT IN REPEATER SET FOR OPTIONAL SUPERIMPOSITION OF A RADAR IMAGE WITHOUT FIXED TARGET ECHO ELIMINATION ONTO A RADAR IMAGE WITH FIXED TARGET ECHO ELIMINATION, tr. by F. H. B. 4 Jan 60, 7p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15096

Trans. of German Auslegeschrift (DAS) 1,040,625, cl. 21a4-48/03, Int. cl. H 04p, of pat. appl. P 19406 VIIIa/21a4, filed 1 Oct 57, laid open to public inspection 9 Oct 58, by Pintsch-Electro G. m. b. H., Konstanz.

From the series of pulses corresponding to the radar image without fixed target echo elimination a series of pulses of the same amplitude is obtained by amplitude limitation or regeneration. This series is added in a desired amplitude ratio to the series of pulses corresponding to the radar image with fixed target echo elimination; an amplitude limiter (clipper) provided in the repeater set then permits indication only of those signals of this combined pulse series whose amplitude exceeds an adjustable minimal value.

Snarskiy, A. A.
EFFECT OF CONTACT-TROLLEY NETWORK ON COMMUNICATIONS LINES AND CENTRAL SIGNAL BLOCKING. 11 Feb 60, 14p. JPRS: 1170-D.
Order from OTS $0.50 60-31051

Trans. of Avtomatika, Telemekhanika, i Svyaz' (USSR) 1959, no. 3, p. 11-15.

Information is surveyed on the electrical and the magnetic effects and methods for computing them.

Solodyazhnikov, N. N.
RADAR. [1959] [189]p. (101 figs omitted). F-TS-10088/III.
Order from LC or SLA mi$8.40, ph$28.80 60-13116

Trans. of mono. Radiolokatsiya, Moscow/Leningrad, 1956, chap. 6-7, p. 121-185 and chap. 10-11, p. 304-421.

The chapters included in the present translation are devoted to: Radar antennas; methods of taking bearings on targets and of sweep scanning; radar receivers; and general oscillators for radar transmitters.

Stanimirovitch, D.
ALKALINE BATTERIES WITH FRITTED PLATES (Accumulateurs Alcalins à Plaques Frittées). [1959] [23]p. (foreign text included) 1 ref.
Order from SLA mi$2.70, ph$4.80 60-14112

Trans. of Revue du Nickel (France) 1958, Apr/June. p. 39-46.

Mechanical Engineering

Dobrynin, O. N. and Mezharayup, G. Ya.
HIGH-POWER BOILER INSTALLATIONS OF THE PODOL'SKII MACHINE CONSTRUCTION FACTORY (Moshchnyye Kotel'nye Agregaty Podol'skogo Mashinostroitel'nogo Zavoda). Dec 59, 25p. RTS no. 1290.
Order from LC or SLA mi$2.70, ph$4.80 60-13467

Trans. of Teploenergetika (USSR) [v. 6] no. 1, p. 28-37.

Ko, Shao-yen.
SCIENTIFIC CONFERENCE IN COMMUNIST CHINA ON INDUSTRIAL HEAT ENERGY, HEAT TRANSFER AND MASS TRANSFER. 10 Feb 60, 4p. JPRS: 1162-D.
Order from OTS $0.50 60-31046

Trans. of K'o Hsüeh T'ung Pao (Chinese People's Republic) 1959, no. 17, p. 561-562.

The Nanking Engineering College and the Power Laboratory of the Academia Sinica called the conference in Nanking during July. Representatives of more than 30 related scientific organizations, production groups, and schools of higher learning participated in the conference.

Ordnance, Missiles, and Satellite Vehicles

Kotel'nikov, V. A., Dubrovin, V. M. and others.
USE OF THE DOPPLER EFFECT TO DETERMINE THE ORBIT PARAMETERS OF ARTIFICIAL SATELLITES. [1960] 13p. 1 ref.
Order from MDF $6.50 MDF K-204

Trans. of Iskusstvennyye Sputniki Zemli (USSR) 1958, v. 1, p. 50-61.

Seitz, George.
THE INFLUENCE OF THE GEOMETRIC FORMS OF POWDER GRAINS ON THEIR BURNING RATES, tr. by Karl P. Gerhard. July 55 [31]p. 3 refs. Picatinny Arsenal Trans. no. 1.
Order from LC or SLA mi$3.00, ph$6.30 59-12440

Trans. of Sprengtechnik (West Germany) 1952, no. 12, p. 221-227 and Explosivstoffe (West Germany) 1953, no. 1/2, p. 15-18, pub. by Erwin Barth Verlag, Mannheim.

A synopsis is given of the several systems that provide the calculation of the form function from the geometry of the grain as it changes during burning. The corresponding formulae are developed for the most commonly used forms. The form function of the burnt mass fraction z may in general be written as $\varphi(z) = (1 - z)^n$. In this formula n is 1/2 for all hollow shapes and long or thin solid prisms, whereas, for spheres, tapered shapes, and prisms in which the three dimensions are nearly equal, it has the value of 2/3. The $k = 1 - (S_1/S_0)^{1/n}$, i.e., from the ratio of the burning areas at the end and at the beginning of combustion.

Wu, Chuang.
THE UNITED STATES GUIDED MISSILE CAN BE DEALT WITH (Mei Chih Tao T'an) tr. by Staley. [1959] [6]p. H-3861.
Order from OTS $0.50 59-21140

Trans. from Chieh Fang Chun Chan Shih (Chinese People's Republic) 1958, 26 Oct.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

Bruyev, S. N.
THE STORAGE OF FRESH APPLES AT BELOW-ZERO TEMPERATURES. Feb 60 [65]p. 38 refs. RTS 1185.
Order from LC or SLA mi$3.90, ph$10.80 60-15555

Trans. of mono. Khraneniye Svezhikh Yablok pri Temperaturakh Nizhe Nulya, Moscow, 1958, p. 1-64.

The present paper is devoted to the study of the effects of below-zero temperatures on the quality of fresh apples during prolonged storage. It presents experimental data obtained in 1951 - 1957 in the storage of experimental batches of apples in the cold stores of the G. V. Plekhanov Institute of National Economy (Institut narodnovo khozyaistva imeni G. V. Plekhanov) and at the town base No. 4 of the Mosgorplodoovoshch reserve stores for fruit. The bulletin has been prepared for experts in the science of commodities of medium or high qualification. The material will be of certain interest to students of commercial and horticultural colleges and University Departments, as well as to research workers. (Extracted from the report)

MACHINERY, FABRICATION, AND ACCESSORY EQUIPMENT

SOVIET RESEARCH ON THE KINETICS OF COMBUSTION PROCESSES. Rept. for 15 Aug 58-15 Aug 59. [99]p. 251 refs. PAL 60-12.
Order from OTS $2.25 60-21220

Summary trans. of Russian literature survey covering the period Jan 54-Apr 59.

Soviet open literature on combustion kinetics related to propulsion is surveyed. Attention is directed particularly to theoretical and experimental investigations of (1) flame propagation in laminar and turbulent flow, (2) the chemical kinetics of combustion reactions, and (3) the thermal decomposition of solid explosives with potential solid propellant applications. Approximately 265 Soviet articles and monographs from some 210 authors were examined either from the abstract or, where available, from the English translation.

USSR INDUSTRIAL EQUIPMENT (TRANSPORTATION, CONSTRUCTION, PRODUCTION, AND POWER MACHINERY) [NO. 20, 29 Mar 60]. [1960] [43]p. 113 refs.
Order from LC or SLA mi$3.30, ph$7.80 60-15694

Trans. of unevaluated information selected from Russian-language publications.

Esche, R. and Wenk, P.
A NEW, EFFICIENT ULTRASONIC INSTALLATION OF WIDER CLEANING RANGE FOR LARGE-SURFACE-CLEANING, tr. by E. Gebert. [1959] 8p. 18 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-16345

Trans. of Siemens [Zeitschrift] (West Germany) 1957 [v. 31] no. 9, p. 469-472.

The ultrasonic cleaning installation URG 10 is described, which can apply the sound to a 600 by 300 mm surface with a cleaning effect up to a 300- or 500-mm depth.

Geschka, Hugo Werner.
CONTROL SYSTEM FOR FULLY AUTOMATIC WASHING MACHINES, tr. by F. H. B. 2 Dec 59, 11p. (3 figs. omitted) 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-13279

Trans. of German patentanmeldung [application] P 11968 VII/8d, cl. 8d, gr. 9-60, Int. cl. D 06f, appl. 17 May 54, laid open to public inspection 29 Nov 56, by Maschinenfabrik Peter Pfenningsberg G. m. b. H.

A control system is described for fully automatic washing machines, particularly those equipped with a pole-changing driving motor, which operates by means of a cam-controlled multiple switch that is driven by a mechanism-driving motor and controls the switch elements for the various operations. The system is characterized in that the switch elements controlling the reversing washing operation and those controlling the centrifugal operation are each combined into one switching group and can be alternately switched on and off by means of a switch contact controlled by a cam plate driven by the mechanism.

Kaminskaya, V. V. and Reshetov, D. N.
CALCULATION AND ANALYSIS OF THE RIGIDITY OF THE PORTAL FRAME AND CROSS-RAILS OF VERTICAL BORING AND TURNING MACHINES, PLANO-MILLING MACHINES AND PLANING MACHINES (Raschet i Analiz Zhestkosti Portalov i Poperechin Karasel'nykh, Prodol'no-frezernykh i Prodol'no-strogal'nykh Stankov). Dec 59, 31p. RTS no. 1238.
Order from LC or SLA mi$3.00, ph$6.30 60-13437

Trans. of Stanki i Instrument (USSR) 1957, v. 27[28] no. 9, p. 1-9.

A method is given for the calculation of stiffness of portal and cross-rail systems in portal type machines; the calculations are taken as basis for an analysis of the forms and corresponding dimensions

of the frame and cross-rail elements. General recommendations are made for selecting the optimum form of these elements and some problems of the unification of the portals and rails of plane-milling and planning machines are discussed.

Kluge, F.
THE DIFFUSER CONTROL, tr. by R. E. P.
3 Dec 54, 1p. (3 figs. omitted).
Order from SLA mi$1.80, ph$1.80 60-10257

Trans. of mono. Turboblowers and Turbocompressors, n.d., p. 218-219.

See also 60-10256

Platzer, Rudolf.
TO IMPROVE THE STRUCTURE OF ENGINEERING PRODUCTION. 17 Oct 58, 14p. JPRS(NY)-L-398.
Order from OTS $0.50 PB 141 305T

Trans. of Planovane Hospodarstvi (Czechoslovakia) 1958 [v. 11] no. 3, p. 165-176.

Machine Parts and Mechanisms

MACHINES AND TOOLING, 1958, VOL. 29, SPECIMEN ISSUE. [1959] [64]p.
Order from PERA $12.00/year

Trans. of selected articles from nine issues of Stanki i Instrument (USSR) 1958.

Contents:
Nitriding steel with high-frequency heating, by E. M. Morozova and F. R. Florensova
Pneumatic-hydraulic equipment in machine tool design, by Yu. I. Kuznetsov and V. K. Kudryashov
Grinding limits and pitch calculations for teeth of draw-type broaches, by P. G. Balyura
Chamfering tool for a boring machine, by I. I. Andreev and I. K. Linnikov
The development of ceramics for metal cutting, by V. Y. Rassokhin and M. A. Rura
Modern methods of grinding rectilinear slideways of machines, by M. O. Yakobson
The effect of cooling media on tool life and surface finish, by V. M. Zaitsev
The group machining of components, by L. T. Shtern
A new tool design and the self-curling of chips, by V. Bernavski (Poland)
Improved locking devices for interchangeable bushes for taps, by M. P. Kozlov
Self-locking transmissions in the feed mechanisms of machine-tools, by V. L. Veits
A machine for milling rubber, by C. P. Kuprianov
Hopper loading mechanisms and their classification, by Kh. Ya. Finkel
Ultrasonic erosion and its relation to the vibration characteristics of the tool, by V. I. Dikushin and V. N. Barke
Effect of iron on the properties of the bronze layer of bi-metallic components, by E. M. Morozova, M. N. Leibova and others
Vibration stability of a flattened (cantilever) boring bar, by Yao Li-Pin
Machine for applying abrasive to polishing wheels, by A. G. Tolmachev
Hydro-dynamic calculations for slideways with linear or circular movement, by G. A. Levit
Programme control of curvilinear surfaces, by V. M. Kiselev
Calculation of strength characteristics of cutting edges of tools, by M. I. Klushin

Höhne, E.
SURFACE HARDENING OF GEARS. [1960].
Order from BISI £7 BISITS 1343

Trans. of V[erein] D[eutscher] I[ngenieur]. Z[eitschrift] (West Germany) 1958 [v. 100] 21 Feb, p. 241-248.

Following a summary of the connection between hardness induced by surface treatment and operational needs, the principal hardening methods are described and compared as regards hardness and its distribution. Included are brief descriptions of hardening equipment. (J. Iron Steel Inst. abstract)

Korniyenko, A. M.
METHODS OF INCREASING THE QUALITY OF MANUFACTURE AND OPERATION OF TURBINE GEAR REDUCTORS. [1959] 10p.
Order from ATS $17.85 ATS-12M38R

Trans. of Energomashinostroyeniye (USSR) 1959 [v. 5] no. 2, p. 35-39.

Rotnitskaya, L. G. and Karasev, L. P.
THE USE OF RESISTANCE WIRE STRAIN GAUGES FOR THE MEASUREMENT OF AXIAL STRESSES IN BOLTS (Ispolzovaniye Datchikov Omicheskogo Soprotivleniya dlya Izmereniya Osevikh Usilii v Boltakh). May 58, 4p. C. T. S. no. 449.
Order from LC or SLA mi$1.80, ph$1.80 60-13046

Trans. of Zavodskaya Laboratoriya (USSR) 1956, v. 22, no. 7, p. 856-857.

The suggested method permits an increase in the accuracy and reliability of the measurements and simplifies their further treatment. Three gauges are glued onto the bolt, equally spaced at 120° intervals. The gauges are joined in series and are connected in the usual way to the measuring circuit. Strains caused by the bending moment, being of opposite sign on either side of the neutral axis, will produce changes of resistance of opposite sign in the gauge. The resultant change of resistance will be equal to zero.

SOVIET MACHINE BUILDING: SELECTED TRANSLATIONS NO. 4. 2 Nov 59, 33p. JPRS: 1978-N.
Order from OTS $1.00 59-13984

Contents:
Measuring, Control, and Regulating Instruments (Kontrol'no-Izmeritol'nyye i Reguliruyushchiye Pribory). Partial trans. (suppls. 1-7) of mono. Neftyanoye Oborudovaniye (Petroleum Equipment) Moscow, 1959 v. 6, p. 340-355.
Increase the Quality of Large Diameter Welded Gas and Oil Line Pipe. Trans. of Stroitel'stvo Truboprovodov (USSR) 1959 [v. 4] no. 7, p. 28-30.

*STANKI I INSTRUMENT (USSR) 1959 [V. 30] NO. 9, P. 1-45 (Machine Tools and Tools). [1960] [19]p. SOV-121-59-9-(1-17)/17.
Order from OTS $0.60, $3.50/6 mo. PB 141 121T-5
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Anisimov, N. P.
AUTOMATIC WELDING AND CUTTING AT THE SARATOV HEAVY MACHINE CONSTRUCTION WORKS (Avtomaticheskaya Svarka i Rezka na Saratovskom Zavode Tyazhelogo Mashinostroyeniya). Jan 60, 8p. RTS 1274.
Order from LC or SLA mi$1.80, ph$1.80 60-15057

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 10, p. 29-30.

Baikova, I. P.
DEFORMATIONS CAUSED IN H-BEAMS BY LAYING UNSYMMETRICAL VERTICAL BEADS ON THE WEB, tr. by J. H. Dixon. Mar 59 [14]p. TR.14/59; M 619.
Order from LC or SLA mi$2.40, ph$3.30 59-22630

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 34-42.

The following conclusions may be drawn from the analysis of test data and calculations. The true bend line for a beam (its deflection line) is determined solely by the bending deformations received from the application of welds located unsymmetrically about the neutral axis, and may be computed by the calculation method for determining welding deformations The beam flange bending deformations are determined not only from the total beam bending deformations, but also from the local beam cross-section deformations acquired through the longitudinal contraction of the transverse welds. The beam flange bending deformations represent the sum of the total and local beam deformations. (Author)

Berezin, B. V.
THE PERFORMANCE OF THE GRID OF A HAMMER MILL [O Rabote Reshetki Molotkovoy Drobilki]. [1960]
Order from BISI £3 5s BISITS 1580

Trans. of Koks i Khim[iya] (USSR) 1957, no. 5, p. 51-55.
Another translation is available from LC or SLA mi$1.80, ph$80 as 59-19436, RTS no. 1020, Aug 59 [8]p.

Reversible hammer mills, pulverizing a wet coal charge, operating at 735 rpm (which corresponds to a peripheral hammer speed of 55.8 m/sec) were investigated at the Makeevka coke by-products works. The mill is provided with gratings. Results showed that the grid sections of the hammer mill which are swept and not swept by the hammers do not play an equal part in the evacuation of the product. Most of the product leaves the mill through the openings in the swept sections, only 10 to 15% leaves through the openings in the non-swept sections. Successive sections of the grid work at varying loadings. The smaller the charge, the less is the loading on each successive section. With large charges, the difference in the loading of successive sections is smoothed out. As the material moves through the grid zone, there is a decrease in the size of the largest particles and in the number of the relatively coarse particles passing out of the mill through successive sections of the grid, and hence an increase in fineness of pulverization. A reduction in the distance between the hammers and the grid is accompanied by a reduction in the output of the latter, by an increase in fineness of pulverization and an increase in the amount of dust in the product. The fineness of pulverization deteriorates and the amount of dust in the product increases in proportion to the wear on the hammers. The wear of the grid has practically no effect on the fineness of pulverization, but the amount of dust formed when working with a worn grid is considerably greater than when working with worn hammers.

Bischof, F.
NITROGEN ABSORPTION DURING ELECTRIC ARC WELDING. [1960].
Order from BISI £4 10s BISITS 1556

Trans. of [die] Technik (Germany) 1949 [v. 4] May, p. 229-234.

Repetition and extension of earlier investigations into nitrogen absorption in welding with naked alloy wire. Thirty-one tests with seven groups of various types of alloy on bases of manganese, chrome, nickel, manganese and chrome, manganese and nickel, chrome and nickel, manganese and chrome and nickel. Extension to acid coated electrodes of the same wire composition; further extension to nine acid and basic coated commercial electrodes. Interpretation and partial comparison with earlier tests and details in technical literature. Influence of basicity. Reference to structure. (Author)

Brodskiy, A. Ya.
A NEW ARC-SPOT WELDING METHOD (ELECTRO-RIVET WELDING) (Novyy Sposob Svarki Elektrozaklepkami Proplavleniyem). Feb 60 [12]p.

3 refs. RTS 1262.
Order from LC or SLA mi$2.40, ph$3.30 60-15556

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 10, p. 18-21.

The new method ensures the bore-fusion of sets consisting of more than three component parts.

Gion, L.
SINTERED ALUMINA CUTTING TOOLS. II. FABRICATION FACTORS. [1960].
Order from BISI £7 10s BISITS 1559

Trans. of Silicates Industriels (Belgium) 1958 [v. 23] June, p. 327-332.

Technological aspect of the problem: influence of fabrication variables on sintering. Particular case of sintered alumina cutting tools: results obtained and interpretation. (Author)

Guzov, S. G.
THE MATERIALS AND THERMAL BALANCES FOR OXYGEN CUTTING (Material'nyy i Teplovoy Balans Kislorodnoy Razdelitel'noy Rezki). Dec 59, 17p. 6 refs. RTS 1202.
Order from LC or SLA mi$2.40, ph$3.30 60-13431

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 12, p. 13-17.

Experiment and analysis showed that the basic principles are the same for all types of oxygen cutting (gas flame cutting and surface planing, also arc-oxygen cutting with metal or carbon electrodes). Either a through cut in a metal article or a channel in its surface are produced by (1) the melting of some of the expelled metal by heat from the heating source, and by excess heat from the chemical reaction, and (2) the oxidation of most of the expelled metal by the oxygen jet, principally in the liquid phase. The slag formed, which consists of metal oxides and un-oxidized iron, is expelled from the reaction zone partially by its own weight (when cutting in the flat position), and partially by the dynamic action of the cutting oxygen jet. Although there is always an excess of oxygen in the cut, in practice the metal expelled is never fully oxidized. Even the oxidized part of the slag always contains a certain amount of lower oxide (ferrous oxide), because of the short time available for the reaction.

Kasatkin, B. S., Kareta, N. L., and Darovskiy, G. F.
FINE STRUCTURE (GRANULAR AND SUB-GRANULAR) AND ITS INFLUENCE ON THE IMPACT STRENGTH OF WELDS, tr. by J. H. Dixon. Mar 59 [16]p. 12 refs. TR.13/59; M 590.
Order from LC or SLA mi$2.40, ph$3.30 59-22657

Trans. of Avtomaticheskaya Svarka (USSR) 1958 [v. 11] no. 2, p. 20-29.

The conditions under which welds are made have a substantial effect on the special features of the fine sub-granular structures of mild and low alloy welds Increase in the cooling rate results in increase in the types II and III stresses, and decrease in the dimensions and chemical heterogeneity of the blocks in the sub-granular structure. A very perfect form of ferrite grain block which approaches crystal symmetry is characteristic of slowly cooled weld metals. The rigidity with which a welded joint is clamped only affects the magnitude of the type II stresses. The critical brittleness temperature (transition temperature) of a weld metal, deduced from impact tests at various temperatures, is determined by the special features of the texture and properties of the sub-micro-regions (the blocks) and the micro-regions (the grains). The types II and III internal stresses play a subordinate part, having a definite influence on the course of the plastic deformation process, which precedes the commencement of formation of micro-cracks. (Authors' conclusions)

Kasprzhak, G. M. and Slepushkin, Ye. I.
NEW WELDING GENERATOR CIRCUITS AND THEIR USE FOR WELDING IN SHIELDING GASES (Novye Skhemy Svarochnykh Generatorov i ikh Primeneniye dlya Svarki v Zashchitnykh Gazakh). Dec 59, 16p. 4 refs. RTS no. 1211.
Order from LC or SLA mi$2.40, ph$3.30 60-13432

Trans. of Avtomaticheskaya Svarka (USSR) 1957 [v. 10] no. 3[54] p. 97-104.

The possibility is considered of producing new welding generators by using ordinary low-voltage separate excitation dc machines.

Kontorov, B. M. and Popova, N. V.
WEAR RESISTANT SURFACE LAYER WELDING USING A HORIZONTAL PLATE ELECTRODE. [1960].
Order from BISI £2 5s BISITS 1629

Trans. of a German version of Svaroch[noye] Proizv[odstvo] (USSR) 1959, no. 9, p. 27-30.

Navrotskiy, D. I.
TESTS FOR THE STRENGTH OF MEMBERS WITH ABRUPT CHANGES IN SHAPE AT LOW TEMPERATURES AND IN DIFFERENT STATES OF STRESS, tr. by J. H. Dixon. Mar 59 [13]p. TR.21/59; M 621.
Order from LC or SLA mi$2.40, ph$3.30 59-22628

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 51-57.

The following conclusions are drawn from the tests performed as to the strengths of test pieces with sharp stress concentrations. A severe reduction in the ultimate strength of test pieces with sharp stress concentrations occurs in a specific range of low temperatures. This brittleness range may be typified for static loading by the value of the critical brittleness temperature (transition temperature) (similarly to the critical impact brittleness temperature). Strength decreases abruptly in the critical tempera-

ture range (for St.3 steel, $T_{crit} = -49^{o} \pm 3^{o}C$). Where fracture occurs below T_{crit}, the influence of the initial welding stresses on strength is considerably less than the influence of temperature change. This on the one hand makes determination of the effect of the welding stresses on strength more difficult; on the other hand it proves that under these conditions the relief of welding stresses cannot result in material increase in strength; their relief is therefore of no great practical significance.

Okerblom, N. O. and Savelev, V. N.
THE CALCULATION OF DEFORMATIONS OF MEMBERS WHEN APPLYING TWO FILLET WELDS SIMULTANEOUSLY, tr. by J. H. Dixon. Mar 59 [18]p. 2 refs. TR-18/59; M 618.
Order from LC or SLA mi$2.40, ph$3.30 59-22631

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 23-33.

Rabkin, D. M.
SPECIAL FEATURES OF AUTOMATIC (SEMI-SUBMERGED) ARC WELDING OF ALUMINIUM AND ITS ALLOYS. Mar 57 [15]p. (7 figs. omitted) 14 refs. TR/2; M 576.
Order from LC or SLA mi$2.40, ph$3.30 59-22671

Trans. of Avtomaticheskaya Svarka (USSR) 1955, v. 8, no. 3, p. 13-25.

The low melting point of aluminium, its low specific weight, high thermal conductivity, as well as exceedingly high affinity to oxygen and nitrogen are the causes of several specific features of the fusion welding of aluminium and its alloys. Among the most important technological aspects of the new method of automatic welding of aluminum are: (1) deep penetration of the parent metal, due to the low specific weight of liquid aluminium; (2) the need for special measures to prevent the weld pool from breaking through at the root under the effect of its own weight; (3) the need for reducing the thickness of the layer of flux in order to avoid the transition from arc discharge to the electric slag process, and (4) the necessity for limiting sodium fluoride content in the flux owing to the possibility of the reaction of aluminium with the fluoride and liberation of sodium with the consequent deterioration of the mechanical properties of the weld metal. (Author's conclusion)

Reutov, N. N.
HYDRODYNAMIC CONDITION OF METAL IN CENTRIFUGAL CASTING AND EFFECT ON MACROSTRUCTURE. Feb 60, 4300 words.
Order from HB $9.80 HB-4771

Trans. of Liteynoye Proizvodstvo (USSR) 1959, no. 6, p. 22-27.

Study of variations in macrostructure of centrifugal castings, brought about by various hydrodynamic states of the metal in the spinning mold and how these states can be controlled to suit the technical requirements to be met by the castings. Experimental procedure; data on model mold; use of floats. Nature of the different hydrodynamic states possible in rotating molds. Effect of increasing viscosity coefficient and thickness of metal layer on hydrodynamic state. Effect of rate of pouring the metal into the mold: 'critical' number of revolutions during and after the pouring. Experiments with Wood's alloy; zinc, and chrome-nickel steel. Effect of rotation of metal at speeds on crystal structure, studied by repeatedly increasing and decreasing the rpm of mold and by reversing the spinning direction. Structure of Cr-Ni steel obtained when metal splashes in mold. (HB abstract)

Russo, V. L. and Yefimov, P. N.
THE EFFECT OF LOW-FREQUENCY VIBRATIONS ON METAL CRYSTALLIZATION IN THE WELD POOL AND ON THE PROPERTIES OF THE WELD METAL (Vliyaniye Vibratsii Nizkikh Chastot na Kristallizatsiyu Metalla Svarochnoy Vanny i Svoystva Metalla Shva). Jan 60, 10p. 9 refs. RTS no. 1200.
Order from LC or SLA mi$1.80, ph$1.80 60-13470

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 11, p. 10-12.

One of the principal effects of low frequency vibrations on the crystallization of a weld pool are the pressure impulses set up in the crystallizing metal. Under a certain intensity of these impulses there takes place a collapse of the tips of growing dendrites, whose fragments acting as additional coercive nuclei of crystallization, lead to the breaking up and disorientation of the structure of primary crystallization. In the examined range of vibration systems (25 to 55 cycles/sec and an amplitude of 0.01 to 2.3 mm) an increase of frequency results in a reduction of the primary grain size and a rise in impact strength. Vibrations in the range examined can be used for welding aluminium alloys under normal conditions. Frequencies of 25 to 60 cycles/sec at amplitudes of 0.5 to 1.5 mm can be used for altering the structure of primary crystallization when welding steels at high conditions and during the process of electro-slag welding. In order to bring about a more thorough fragmentation of primary crystallization under normal conditions of welding steel, it is necessary to use elastic vibrations of a supersonic range. (Author)

Shchipkov, M. D.
THE INFLUENCE OF FLUX COMPOSITION ON THE REDUCTION OF SILICON AND MANGANESE DURING THE AUTOMATIC WELDING OF MILD STEEL, tr. by J. H. Dixon. Mar 59 [21]p. 16 refs. TR. 23/59; M 623.
Order from LC or SLA mi$2.70, ph$4.80 59-22626

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 111-122.

In the submerged arc automatic welding of mild steel the silicon and manganese reduction processes are most intense during the transfer of droplets of metal through the welding arc zone. As a result of reduction, the concentrations of silicon and manganese

in the metal droplets increase in direct proportion to the increase in the concentrations of their oxides in the flux. In the automatic welding of mild steel under the usual welding conditions, the reduction of silicon and manganese from the flux and their transfer to the metal take place when the concentration of silica in the flux exceeds 25 and that of MnO exceeds 12 molecular percent. Equations are derived that enable the concentrations of silicon and manganese in the weld metal to be determined with relation to the compositions of the parent metal, electrode wire and flux which are used. These equations also enable the permissible limits of variation in the flux silica and MnO concentrations to be determined in order to ensure (for given parent metal and electrode wire chemical compositions) the required concentrations of silicon and manganese in the weld metal. Carbon, silicon and other deoxidizing alloying elements are oxidized in the weld pool, but with the normal concentrations of oxygen (0.02 to 0.06%) in the automatic welding of mild steel, carbon is the principal element oxidized. There may be reduction in the concentrations of silicon and manganese, owing to oxidation in the weld pool, either where the oxygen concentration is high (the welding of a rusted or highly oxidized parent metal) or where the silicon or manganese concentrations are high ($[Si]_w > 0.3\%$; $[Mn]_w > 1\%$).

Smirnov, F. I. and Budylin, M. M.
MECHANIZATION OF PRODUCTION LINES FOR SHELL CASTING (Mekhanizirovannaya Liniya Obolochkovogo Lit'ya). [1959].
Order from LSB $5.00 LSB-104

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 1, p. 3-7.

Stepanov, A. V.
A NEW METHOD OF PRODUCING MANUFACTURED ARTICLES DIRECTLY FROM A MELT. [1960].
Order from BISI £3 5s BISITS 1638

Trans. of *Vestnik Mashin[ostroyeniya] (USSR) 1959 [v. 39] no. 11, p. 47-49.

Wu, Ju-yang.
PROGRESS IN AUTOMATION RESEARCH AND TECHNIQUES. 17 Feb 60, 3p. JPRS: 2249.
Order from OTS $0.50 60-11301

Trans. of K'o Hsüeh Hsin Wen (Chinese People's Republic) 1959, no. 32, p. 5.

Zaslavskiy, M. L.
VACUUM DIE CASTING (Vakuumnoye Lit'ye Pod Davleniyem). [1959].
Order from LSB $5.00 LSB-101

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 7, p. 6-8.
Another translation is available from HB $4.40 as HB-4612, Jan 60, 2200 words.

A survey.

Zaytsev, Yu. M. and Tyagun-Belous, G. S.
DESULFURIZING CAPACITY OF FLUXES IN ELECTRO-SLAG WELDING [Obesserivayushchaya Sposobnost' Flyusov pri Elektro-Shlakovom Protsesse]
Feb 60, 900 words.
Order from HB $2.90 HB-4685

Trans. of Avtom[aticheskaya] Svarka (USSR) 1958, v. 11, no. 11, p. 57-60.

Paucity of data on sulfur removal from weld puddle in electro-slag welding. Experimental setup. Flux compositions studied. Formulas expressing the desulfurizing power. Degree of desulfurization as function of welding current and voltage. Advantages of fluoride-containing fluxes. (HB abstract)

Zeunert, Fritz.
DRIVE FOR ROLLING MILLS, PARTICULARLY COLD STEP TUBE ROLLING MILLS, tr. by J. C. L. 29 Feb 59, 2p. (2 figs. omitted) 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-15551

Trans. of German patent 962,062, cl. 72, gr. 16/01, appl. 14 July 55, appl. announced 25 Oct 56, grant announced 4 Apr 57, pub. 18 Apr 57, by Mannesmann-Meer Aktiengesellschaft.

The drive, with arrangement for balancing the mass acceleration outputs, is characterized in that the balancing masses are linked with additional connecting rods on the cranks on which the connecting rods of the roll stand are rotatably mounted, so that the balancing masses carry out a vertical or approximately vertical motion.

Zoppis, Giovanni.
EXTERNALLY COLLAPSIBLE AND OPENABLE METALLIC FRAME FOR PROTECTING, RETAINING, AND ASSEMBLING DEVICES, FIELD AND CAMP TENTS, ILLUMINATION APPARATUS, AND THE LIKE, tr. by P. C. C. 31 Dec 59, 7p. (12 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13284

Trans. of Italian patent 442,987, cl. XVIII, appl. 4 June 48, granted 3 Dec 48, printed Dec 49.

The umbrella-type frame comprizes a short shank which slides toward the outside of the frame inside a fixed sleeve, the shaft being eliminated so that the space in the frame is substantially empty. The device which controls the motions of the short shank in the sleeve is provided outside the frame proper. Means (preferably of the type used in umbrella frames) are provided for holding the short shank in its lower position in the sleeve in order to determine the open position of the frame.

Transport, Traction and Hoist Facilities

Bauernstein, B.
CONCERNING THE INITIATION OF FRONT-WHEEL SHIMMYING THROUGH ROAD UNEVENNESSES.

[1959] 25p. 4 refs.
Order from SLA mi$2.70, ph$4.80 60-14067

Trans. from ATZ [Automobiltechnische Zeitschrift] (Germany) 1959, v. 61, no. 10.

A calculation is made of the effects on the wheel direction caused by driving over an idealized sewer cover.

Gubenko, E. N.
A SIMPLIFIED METHOD OF CALCULATING THE HEATING IN TRACTION MOTORS OF ELECTRIC LOCOMOTIVES (Uproshchennyi Metod Rascheta Nagrevaniya Tyagovykh Dvigatelei Elektrovozov). Dec 59, 6p. 1 ref. RTS no. 1193.
Order from LC or SLA mi$1.80, ph$1.80 60-13429

Trans. of Elektricheskaya i Teplovoznaya Tyaga (USSR) 1958, no. 3, p. 35-36.
Another translation is available from LC or SLA mi$1.80, ph$1.80 as 59-22425, 19 Mar 59, 4p. M-V Trans. no. 2523.

The method described is accurate to within 1^{o} or $2^{o}C$ and uses only the speed-variation curve.

Kloth, W.
STRESS FIELD AS A FUNDAMENTAL TOOL IN CRANE DESIGN. [1960].
Order from BISI £4 10s BISITS 1628

Trans. of Stahl u[nd] Eisen (West Germany) 1960 [v. 80] 4 Feb, p. 159-164.

Knowledge of stress fields as a fundamental requisite in crane design and design calculations. Reduction in crane weight and greater economy of materials in use. Local design in the light of specific stress fields. Determination of stress fields. Examples on the proper use and evaluation of stress fields. Avoidance of unfavourable stress peaks and of stress peaks defying calculation on a welded nodal point with an open profile. Design of nodal points of rectangular hollow sections and gusset plates, deviating only slightly from calculated values. Stress peaks caused by local welded-on straps, thereby doubling the stress level. Impossibility of expressing stress distribution in fields containing stiffening plates in mathematical form. (Author)

Lbov, G. F.
MECHANIZATION AND AUTOMATION OF WELDING IN THE AUTOMOBILE INDUSTRY [Mekhanizatsiya i Avtomatizatsiya Svarki v Avtomobil'noy Promyshlennosti]. [1959].
Order from LSB $7.50 LSB-102

Trans. of [Svarochnoye Proizvodstvo] (USSR) 1958, no. 4 [p. 5-10].

Information is presented on welding methods and special welding equipment used at the Gor'kiy Automobile Plant.

Loskutov, V. I.
THE AUTOMATIC CONTROL BY MEANS OF MATHEMATICAL MACHINES OF THE HAULING OF A TRAIN BY A LOCOMOTIVE (Avtomaticheskoye Upravleniye Poyezdnoy Rabotoy Lokomotivov pri Pomoshchi Matematicheskikh Mashin). Jan 60, 15p. RTS no. 1312.
Order from LC or SLA mi$2.40, ph$3.30 60-13476

Trans. of Priborostroyeniye (USSR) 1958, no. 4, p. 1-5.

A model of an "automatic motorman" intended for an $S\frac{5}{3}$ railcar unit is described which was tested on the Kuibyshev-Bezymyanka line in November, 1957. These preparatory tests showed that this system of automatic control of train haulage was completely practicable and capable of carrying out all the functions necessary for automatic control. All the test runs of the railcar unit were made under automatic control without the intervention of the motorman. The automatic control system drove the train according to the predetermined movement chart, working out unaided the necessary speeds for this; it stopped the train with two-stage braking, responded to both permanent and temporary speed restrictions, and worked out for itself the coefficients of resistance to movement.

Ogliari, Gustavo.
SUSPENSION DEVICE FOR MOTOR VEHICLES PROVIDED WITH TELESCOPIC SHOCK ABSORBERS, tr. by P. C. C. 7 Jan 60, 3p. (5 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15091

Trans. of French patent 1,044,393, gr. 10, cl. 1, appl. 2 Nov 51, granted 17 June 53, pub. 17 Nov 53 (appl. in Italy 7 May 51).

The device is characterized by a coil spring arranged around each telescopic shock absorber, collars provided with stop members for the ends of the spring being arranged at the upper and lower ends of the shock absorber, so as to increase the flexibility of the suspension. The collars are fixed to the shock absorbers by screwing. The stop member carried by the upper collar consists of a round iron ring welded on said collar. The stop member carried by the lower collar consists of a cup which forms an integral part of said lower collar. The spring arranged around the telescopic shock absorber is fixed to the two ends of said shock absorber, so that said spring can operate under tension or under compression. Each of the cylindrical elements of the collar telescopic shock absorber is provided with projections or lugs which carry bolts or hook members designed to hold the ends of the spring.

Orlova, T. I.
PRODUCTION OF CYLINDER BLOCKS FOR AUTOMOBILES FROM ALUMINIUM ALLOY BY CASTING UNDER PRESSURE (Proizvodstvo Blokov Tsilindrov iz Alyuminiyevogo Splava Lit'em pod Davleniyem dlya Avtomobiley). May 58, 4p. C. T. S. no. 468.
Order from LC or SLA mi$1.80, ph$1.80 60-13050

Trans. of Liteynoye Proizvodstvo (USSR) 1957, no. 6, p. 7-8.

The cold pressure chamber at the Doyler Jarvis works (USA) is described.

Pevzner, Ya. M.
SELF-COMPENSATING MOTOR-VEHICLE SUSPENSIONS (Avtomobil'nye Podveski s Korrekturuyushchimi Prozhinami). July 58, 16p. C. T. S. no. 490.
Order from LC or SLA mi$2.40, ph$3.30 60-13322

Trans. of Avtomobil'naya Promyshlennost' (USSR) 1956, no. 12, p. 22-25.

The use of compensating springs is a simple means of constructing a suspension with non-linear characteristic, the stiffness of which will vary according to a required law. It is evident that this type of suspension will be adopted in the home motor car industry. In particular, a suspension with compensating springs has been adopted for the new omnibus LA3-695 of the Lvov Omnibus Factory. (Author's conclusions)

Pospelov, V.
THE AUTOMATIC MOTORMAN (Avto-mashinist). Jan 60, 8p. RTS no. 1313.
Order from LC or SLA mi$1.80, ph$1.80 60-15065

Trans. of Tekhnika Molodezhi (USSR) 1958 [v. 26] no. 12, p. 35-36.

An autobiographical account is presented of a trial ride on an electric train controlled by a computer instead of a motorman.

Steiner, Erwin.
SOUTH AFRICAN RAILWAYS (S. A. R.) (Die Sudafrikanischen Eisenbahnen). [1958] [23]p. H-2397.
Order from OTS $0.75 59-11887

Trans. of Schwiezerisches Archiv für Verkehrswissenschaft und Verkehrspolitik, 1957, no. 3, p. 213-233.

Topics headings are (1) historical background, (2) the extent and importance of South African Railway net, (3) tariffs (rates and fares), (4) electrification of lines, (5) locomotives, passenger and freight cars, (6) finances, (7) administrative organization, (8) recruitment, training, and strength of the railroad personnel, (9) the track-highway problem, and (10) plans for further expansion of South African Railways

Zorov, B. I.
INTERDEPENDENT SUSPENSION OF THE DE PONTIAC AUTOMOBILE (ABSTRACT) (Vzayimozavisimaya Podveska Avtomobilya De Pontak). June 58, 4p. (1 fig. omitted) C. T. S. no. 491.
Order from LC or SLA mi$1.80, py$1.80 60-13228

Trans. of Avtomobil'naya Promyshlennost' (USSR) 1957, no. 3, p. 46.

MATERIALS

Lantsevitskaya, S. L., Neverova, A. K., and Ter-Grigoryan, Yu. N.
THE DEFORMATION OF GEL CEMENT DURING PERFORATION [Deformatsiya Gel'tsementnogo Kamnya pri Perforatsii]. [1959] 3p.
Order from ATS $6.00 ATS-45M38R

Trans. of Neftyanoye Khoz[yaystvo] (USSR) 1958, v. 36, no. 12, p. 26-28.

Marschall, H. J.
MAGNETIC PARTICLE INSPECTION AND THE MOST RECENT METHODS OF INDICATION. [1960].
Order from BISI £4 10s BISITS 1567

Trans. of Werkstatt u[nd] Betrieb (West Germany) 1958 [v. 91] Nov, p. 649-653.

The principle is illustrated and equipment is described with samples of test results. (J. Iron Steel Inst. abstract)

Marschall, H. J.
NON-DESTRUCTIVE MATERIALS TESTING, MAGNETIC PARTICLE INSPECTION. III. INNOVATIONS. [1960].
Order from BISI £3 10s BISITS 1590

Trans. of Arch[iv für] Tech[nisches] Messen u[nd] Industrielle Messtechnik (West Germany) 1959, v. 283, no. V 91 191-3, p. 161-164.

Ratts, E. G., Kholmyanskiy, M. M., and Kol'nev, V. M.
TRANSMISSION OF STRESS TO CONCRETE BY THE STEEL IN PRESTRESSED MEMBERS (Peredacha Armaturoy Predvaritel'nykh Napryazheniy na Beton) tr. by M. Slade. 1958 [28]p. Trans. no. 4045.
Order from LC or SLA mi$2.70, ph$4.80 60-15378

Trans. of Beton i Zhelezobeton (USSR) 1958, no. 1, p. 4-13.

Sarapin, I. G.
CORROSION OF WIRE REINFORCEMENT IN DENSE CONCRETE CONTAINING CALCIUM CHLORIDE (O Korrozii Provolochnoy Armatury v Tyazhelom Betone s Dobavkoy Khloristogo Kal'tsiya) tr. by G. N. Gibson. May 59 [5]p. 3 refs. Library Communication no. 897.
Order from LC or SLA mi$1.80, ph$1.80 59-19284

Trans. of Promyshlennoye Stroitel'stvo (USSR) 1958, v. 36, no. 12, p. 21-23.

Tests showed that the addition of only calcium chloride to the concrete mix results in intensified corrosion, when the specimens are stored under severe outside conditions and the protective concrete is 10 mm thick. If 2 percent of sodium nitrite is also added, when the specimens, with a protective concrete cover of 10 and 15 to 20 mm, are stored under severe conditions, the amount of corrosion is markedly reduced. When specimens are stored under normal conditions the reduction of corrosion is from 10 to 50 percent of the amount of corrosion of specimens stored under severe conditions, and the reduction of corrosion is the greater the smaller the addition of $CaCl_2$ to the concrete mix. When 1 percent of $CaCl_2$ and 2 percent of $NaNO_2$ (of the weight of cement) are added, the specimens are stored under normal conditions, and the thickness of the protective concrete cover is 15 to 20 mm, no corrosion of the wire is observed. When the thickness of the protective concrete is increased from 10 mm to 15 or 20 mm the corrosion of the reinforcement is reduced somewhat (from 15 to 40 percent), especially if the content of $CaCl_2$ in the concrete is reduced. The wire is much less corroded on the side remote from the protective concrete cover than on the side at the protective concrete, and with a content of 1 to 2% of $CaCl_2$ in the concrete the area of corrosion is from 7 to 15 percent of the surface of the reinforcement if there is no addition of sodium nitrite and it is from 0 to 4 or 6 percent if 2 percent of $NaNO_2$ (of the weight of cement) is added.

Shestoperov, S. V. and Panfilova, L. I.
THERMAL TREATMENT OF CONCRETE (K Voprosu Termoobrabotki Betona) tr. by M. Slade. 1958 [11]p. (foreign text included) Trans. no. 4046.
Order from LC or SLA mi$2.40, ph$3.30 60-15377

Trans. of Beton i Zhelezobeton (USSR) 1958, no. 1, p. 19-22.

If concrete mixtures of vibrator-ground or fresh cements of high quality (600 or higher) are used with a W/C = 0.35 and are isothermally heated for 6 to 8 hours, the compressive breaking strength of the resulting product is 75 to 80% that of a similar product that is hardened for 28 days under normal conditions.

Turriziani, Renato.
THE PROCESS OF HYDRATION OF PORTLAND CEMENT, I-II, tr. by Carl Demrick. [1960] 48p. (refs. omitted).
Order from SLA mi$3.30, ph$7.80 60-14132

Trans. of l'Industria Italiana del Cemento, 1959, v. 29, no. 7/8, p. 185-189; no. 9, p. 219-223; no. 10, p. 244-246; no. 11, p. 276-280 and 282.

The equilibria of the aqueous systems which are involved in the process of hydration of Portland cement are reviewed and a study is presented of the process of hydration of the pastes of four types of cement of a hydraulic module variable between 2.55 and 2.02 and of a flux module variable from 11.37 to 1.38. The experimental methods employed were X-ray and thermal differential analysis. To facilitate the recognition of the hydrated compounds containing R_2O_3, the pastes were subjected to fractionation with heavy liquids. The two series of pastes, prepared with 30 and 50% of water, were cured in water, in closed tanks, at $18^{o} \pm 0.5^{o}$C and examined after 7, 8 and 60 days, and after 6 and 12 months. The paste of a fifth type of cement cured in water for 6 years was also examined. Excepting only the reactions in which gypsum participates, each of the mineralogical constituents of the clinker is hydrated with formation of ternary compounds regardless of the nature and quantity of the other phases present. The hydration product consists of calcium hydrate, hydrated calcium silicate deriving from the hydration of the anhydrous silicates, the acicular trisulfate phases (ettringite and trisulfoferrite) and the hexagonal phases consisting of hydrated tetracalcium aluminate and probably the solid solutions $4CaO.R_2O_3(H_2O)$. The hydrated silicate possesses a very low degree of crystallization and therefore the problem whether it should be identified with silicate I or with silicate II seems to be overcome. It possesses structural analogies with these types of hydrated silicates. All of the gypsum originally present in the cement is generally found again in the pastes as trisulfate; in none of the tested samples was it possible to demonstrate the presence of monosulfatic forms. The results obtained have not furnished definite indications on the hydration products of brownmillerite.

Ceramics and Refractories

Kitaygorodskiy, I. I., Rishina, V. A., and Sentyurin, G. G.
PRODUCTION OF FOAM GLASS FROM LOW-MELTING CLAYS. [1959] 6p.
Order from ATS $9.95 ATS-46M37R

Trans. of Khim[iko]-Tekh[nologicheskiy] Inst[itut] Moscow. Trudy (USSR) 1957 [v. 22] no. 24, p. 318-323.
Another translation is available from LC or SLA mi$1.80, ph$1.80 as 59-15810 [1959] [5]p.

The possibility and desirability of forming foam glass directly from raw materials without first making the glass is demonstrated. Conditions were worked out for obtaining foam glass from easily fusible clays and the considerable effect played by fine grinding on the foaming temperature has been established. Foam glass with improved mechanical properties was obtained and can thus be used not only as a heat-insulating material but also as a weight carrying building material. The possibility of obtaining foam glass from Bun'kov clay under factory conditions has been verified. With an addition of 0.5 parts by weight of lampblack, foam glass has been obtained at a temperature of $1,020^{o}$ with a bulk density of 0.21 to 0.22 g/cc and ultimate strength under compression of 25 to 30 kg/sq cm.

Marants, A. G. and Kamenchik, A. Ye.
AN EXPERIMENT IN THE USE OF FUSION-CAST ZIRCON-MULLITE REFRACTORIES IN THE WATER-COOLED PORTS OF AN OPEN-HEARTH FURNACE (Opyt Primeneniya Plavleno-litykh

Tsirkono-mullitovykh Izdelii v Kessonakh Martenovskoy Pechi). Apr 58, 9p. 7 refs. C.T.S. no. 435. Order from LC or SLA mi$1.80, ph$1.80 60-13045

Trans. of Ogneupory (USSR) 1957, v. 22, no. 4, p. 145-152.

An experimental batch of zircon-mullite refractories, prepared at the Erevan Mullite Plant, exhibits good physical and ceramic properties. The intrinsic defect of these products is their high content of fluxing oxides (about 7 - 7.5 per cent), and their consequent high content of vitreous phase. Testing of the experimental cast zircon-mullite blocks in the water-cooled ports of an open hearth furnace, the first industrial testing of fusion-cast refractories in Soviet ferrous metallurgy, showed that it is possible, in principle, to use such products under severe conditions of service. During service in the ports of an open hearth furnace, wear of the experimental refractories proved greater than that of chrome-magnesite, and particularly of dense periclase-spinel, refractories. In order to devise and perfect manufacturing processes for various types of fusion-cast refractories, and likewise to find economical fields for their application in metallurgy, it is suggested that an industrial unit for the experimental production of such refractories be constructed in the near future at one of the plants of the Glavogneupor group. (Author)

Fuels, Lubricants, and Hydraulic Fluids

Ducommun, Paul.
THE ALTERATION OF STABILIZED WATCH LUBRICATING OILS. [1959] [22]p. (43 figs. 16 tables refs. omitted).
Order from SLA mi$2.70, ph$4.80 59-20096

Trans. of Societe Suisse de Chronometrie. Bulletin Annuel [sic] 1948, v. 2, p. 507-546. (also as Journal Suisse [d'Horlogerie] 1948 [v. 73] p. 93-114 and 1949 [v. 74] p. 139-156)

In certain cases a stabilized watch lubricating oil can quite readily become resinified in a few months. The alteration of stabilized watch lubricating oil is connected with the destruction of the antioxidant. The contact with metals is the principal effective cause. The alteration of the oil is much more rapid in small watches.

Popov, V. A.
DEVELOPMENT OF THE COMBUSTION PROCESS OF MOVING PARTICLES IN NONSTATIONARY HYDRODYNAMIC AND THERMAL CONDITIONS [Razvitiye Protsessa Goreniya Dvizhushchikhsya Chastits v Nestatsionarnykh Gidrodinamicheskikh i Teplovykh Usloviyakh] tr. by B. W. Kuvshinoff. 3 Dec 59, 12p. 6 refs. TG 230-T132.
Order from OTS $0.50 60-21066

Trans. of Akademiya Nauk SSSR. Otdeleniye Tekhnicheskikh Nauk. Izvestiya, 1958, no. 12, p. 90-95.

Under nonstationary hydrodynamic and thermal conditions the combustion of a spherical particle of fuel is characterized by the presence of a distinct initial period during which the magnitude of the specific rate of combustion is greater than that determined from conditions of quasistationary values of α. The duration of the initial period of intensified burning depends relatively slightly on the diameter of the particle (in the range from 4.5- to 2.4-mm diameter). To describe the process in all states it is necessary to consider the change in the coefficient of reaction gas exchange as a function of time on the basis of the solution of the corresponding diffusion equations with internal sources. (Author's conclusions)

Sanin, P. I. and Sher, V. V.
CHEMICAL STRUCTURE OF THE ALKYLPHENOLS AND THEIR ACTIVITY AS DEPRESSANTS (Khimicheskoye Stroyeniye Alkilphenolov i ikh Aktivnost' kak Depressorov). June 58, 6p. 1 ref. C.T.S. no. 488.
Order from LC or SLA mi$1.80, ph$1.80 60-13321

Trans. of Akademiya Nauk SSSR. Institut Nefti. Trudy, 1956, no. 8, p. 180-184.

Eighteen alkylphenols were synthesised, nine of which have not previously been described in the literature. The activity of alkylphenols as additive-depressants is shown to depend on their structure (number and structure of alkyl groups).

Shapiro, M. D., Al'terman, L. S., and Raskina, L. S.
KINETICS OF THERMAL DECOMPOSITION OF COAL (Kinetika Termicheskogo Razlozheniya Uglya) tr. by E. Feigl. [1959] [15]p. (foreign text included) 6 refs. Trans. no. 4223.
Order from LC or SLA mi$2.40, ph$3.30 60-15380

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1957 [v. 2] no. 12, 64-69.

A study of the kinetics of tar and gas formation during thermal decomposition of coal led to a qualitative characterization of the plastic mass. The plastic mass of coal has the properties of a colloidal system. The properties of the plastic mass determine the caking capacity of a coal. Thermal stability is the most important property of the plastic mass. The caking capacity of a coal improves with increasing temperature of decomposition of the plastic mass. The properties of the plastic mass may be changed by adding small quantities of certain substances. This procedure also affects the caking capacity of the coal. The A bitumens of caking coals and certain quantities of fusain and spore matter increase the thermal stability of the plastic mass. The yield of distillate (tar) of a given coal is inversely proportional to the caking capacity. The tar yield of the semi-coking process may be considerably increased by adding certain substances which disturb the colloidal system to caking coals or by extracting the A bitumens. The properties of the plastic mass depend on the composition of the coal. These properties may be changed by blending the coal for the coke oven charge. (Author)

Wiegand, H. and Kloos, K. H.
INFLUENCE OF THE SURFACE BOUNDARY LAYER ON THE FRICTIONAL BEHAVIOUR OF AUSTENITIC MATERIALS IN COLD-FORMING IN THE DEEP-DRAWING PROCESS. [1960].
Order from BISI £2 10s BISITS 1573

Trans. of Metalloberfläche (West Germany) 1959 [v. 13] Aug, p. 229-233.

The instability of austenitic substances to plastic deformation was utilized to study the occurrence of boundary lubrication conditions in deep drawing. The martensite constituents detected radiographically in the boundary layer were used to evaluate qualitatively the friction and wear properties of various high-pressure lubricants. (J. Iron Steel Inst. abstract)

Zabavin, V. I. and Kleymenova, L. A.
THERMAL HYDROLYTIC CLEAVAGE OF THE BASIC ORGANIC MATTER OF COAL (Termogidroliticheskoye Rasshchepleniye Osnovnoy Organicheskoy Massy Kamennykh Ugley). [1959] [11]p. (8 Eng. refs. omitted) 9 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-14011

Trans. of Akademiya Nauk SSSR. Otdeleniye Tekhnicheskikh Nauk. Izvestiya, 1957, no. 8, p. 72-77.

A method was developed for thermal hydrolytic cleavage of the primary organic matter of coal under mild conditions. The method consists essentially in successive heating of the coal and its residues with α-naphthol at 280°C and with 5% KOH solution in a mixture of alcohol and pyridine at approximately 90°C, and separation from the solution of substances of acid and neutral nature. Up to 80% of the organic substance of bituminous coal, types D, G, and PZh (long-flaming, gas, and bituminous boiler coal) can be dissolved and split into its chemical components with 4 to 6 successive treatments. The substance of the coal samples investigated split up as follows: D coal entirely into substances of acid nature, G-D coal into equal parts of acid and neutral products, and PZh coal entirely into products of a neutral nature.

Leather and Textiles

Dudnik, A. I.
AN AERODYNAMIC METHOD OF HOT-DAMPING TOPS AND ROVING. Jan 60, 8p. RTS 1368.
Order from LC or SLA mi$1.80, ph$1.80 60-15061

Trans. of Tekstil'naya Promyshlennot' (USSR) 1959 [v. 19] no. 1, p. 31-33.

The aerodynamic method consists of blowing through the tops or roving, which is in bundles, a mixture of steam, water and air at a given temperature and moisture content. A high-pressure fan is used for blowing the mixture through. This method has been successfully used under factory conditions.

Sporyshev, A. M.
EXPERIENCE IN THE CONVERTING OF A MIXTURE OF COTTON AND CAPRONE (Opyt Pererabotki Smesi Khlopka i Kaprona). Jan 60, 12p. RTS 1367.
Order from LC or SLA mi$2.40, ph$3.30 60-15060

Trans. of Tekstil'naya Promyshlennost' (USSR) 1959 [v. 19] no. 1, p. 27-31.

The experience of the Balashikha Cotton-spinning Factory shows that it is possible to convert a mixture of cotton and 30% caprone successfully on existing equipment. The technical process of converting such a mixture follows perfectly normal lines on all machines. The breakage frequency in spinning is about 130 to 140 breaks per 1,000 spindles per hour. (Author)

Paints and Finishes

PROCESS FOR PREPARING OILY, SICCATIVE BINDERS FOR LACQUERS, tr. by C. P. 30 Sep 59, 6p.
Order from LC or SLA mi$1.80, ph$1.80 59-22278

Trans. of French patent 885886, gr. 14, cl. 2, appl. 12 Sep 42, granted 15 June 43, pub. 28 Sep 43 (appl. filled in Germany 9 Oct 41) by I. G. Farbenindustrie Aktiengesellschaft, Germany.

The process consists of treating with oxygen or gaseous mixtures containing it, solutions of fluent polymerizates of butadiene or its homologues by means of an alkaline metal.

Shosmakovskiy, M. F., Korshak, V. V. and others.
FILM-FORMING MATERIALS BASED ON VINYL ESTERS OF FATTY ACIDS (Plenkoobrazovateli na Osnove Vinilovykh Yefirov Zhirnykh Kislot). July 58, 7p. 11 refs. C. T. S. no. 496.
Order from LC or SLA mi$1.80, ph$1.80 60-13324

Trans. of *Zhurnal Prikladnoy Khimii (USSR) 1957, v. 30, no. 9, p. 1368-1374.

A method was developed for producing film-forming materials by copolymerization of vinyl esters of higher fatty acids with other unsaturated compounds. Fatty acid vinyl esters are especially prone to dissociation at high temperatures. A drying oil material with a low free fatty acid content can only be prepared from the vinyl esters by copolymerization with tung oil (15 percent) because copolymerization takes place at lower temperatures than polymerization. The method developed for synthesis of film-forming materials by vinylation of fatty acids made it possible to establish a practical process for copolymerization of vinyl esters of higher fatty acids with a proportion of tung oil to give a product which dries like linseed oil only after addition of driers. Copolymers of fatty acid vinyl esters with tung oil were used to prepare paints with satisfactory properties suggesting that the synthetic drying oil is a suitable binder for paints capable of replacing oil paint.

SENSITOMETRIC METHOD FOR THE ELECTROPHOTOGRAPHIC PROCESS HAS BEEN RECOMMENDED. [1959] 4p. T-3106.
Order from LC or SLA mi$1. 80, ph$1. 80 60-14149

Trans. of Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 319-320.

The text of the recommendation is given. The recommendation was presented by professor K. S. Lyalikov at the 43rd. Open Science Meeting of the Leningrad branch of the Commission on the Science of Photography and Motion Pictures of the Academy of Sciences of the USSR on April 24, 1959. The proposed method provides a means of obtaining a quantitative estimate both of the photoelectric properties of light-sensitive semiconductor layers and the photographic properties of the electrophotographic process.

Chartoriyskiy, B. A. and Chel'tsov, V. S.
CHARACTERISTIC DESCRIPTION OF THE PHOTOGRAPHIC ACTIVITY OF DIFFUSING COLOR COUPLERS [O Kharakteristike Fotograficheskoy Aktivnosti Diffundiruyushchikh Komponent Tsvetnogo Proyavleniya]. [1959] 5p. 4 refs. T-3094.
Order from LC or SLA mi$1. 80, ph$1. 80 60-14157

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 6,. p. 427-429.

The effect of different diffusing couplers on the rate of color development was studied by evaluating the rate of development of the silver image. It was confirmed that the dominating factor determining the kinetics of color development is the activity of coupler based on the combination of the primary products of oxidation of the developer with the formation of dye. Analogous to the proportional relationship of the coefficient of contrast and the logarithm of the concentration of the developer, during the color development the coefficient of contrast of the silver image is changed proportionally to the logarithm of the concentration of the diffusing color coupler in the developer, inasmuch as the process of the color development is continuous and the rate of the first phase of the color development depends equally upon the concentration of the developer and the concentration of the coupler. The activity of diffusing color couplers can be quantitatively characterized by the tangent of the angle formed by the axis of abscissae and the line expressing the dependence of the coefficient of contrast upon the logarithm of the concentration of coupler.

Chernyy, I. A.
INTERNATIONAL STANDARDIZATION OF A METHOD FOR NUMERICAL EXPRESSION OF THE SPEED OF BLACK-AND-WHITE NEGATIVE PHOTOGRAPHIC MATERIALS. [1959] [7]p. 4 refs. T-3104.
Order from LC or SLA mi$1. 80, ph$1. 80 60-14151

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 313-316.

Differences are explained which exist between (1) GOST 2817-50, used in the Soviet Union; (2) DIN 4512-1957, used in Germany and many other European countries; and (3) ASA PH 2-5-1954, used in the United States, Great Britain, France, Japan, and some other countries. The new proposals are discussed which were presented by the United States delegation at the June 1958 session of the International Organization for Standardization. These proposals differ essentially from the ASA standards and approach the GOST and DIN standards.

Fayerman, G. P.
MECHANISM OF THE REACTION OF ORGANIC ANTIFOGGANTS IN THE DEVELOPER. [1959] 3p. 3 refs. T-2980.
Order from LC or SLA mi$1. 80, ph$1. 80 60-14154

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 3, p. 235-236.

Motion picture positive and negative (type A) films were developed in a developer consisting of one gram of metol, 5 grams of hydroquinone, 20 grams of anhydrous Na_2CO_3, and 26 grams of anhydrous Na_2SO_3, and water to make one liter, containing various quantities of potassium bromide benzotriazole, 5-nitrobenzimidazole phenyl mercapto tetrazole, and 5-methyl-7-hydroxy-2, 3, 4-triazoindolizine, when the temperature of the developer was 20°C. Exposure, development and measurement of optical densities of sensitometric strips of these films were made in agreement with the GOST standard 2817-50. With the exception of 5-methyl-7-hydroxy-2, 3, 4-triazolindolizine the dependence of the optical density D upon the logarithm of the concentration of organic antifoggants in the developer was linear. The action of these compounds is interpreted from the viewpoint of electrochemical theory of development. In some cases the relationship $D = f(\log C)$ is expressed by a broken line in which the section corresponding to low concentrations of antifoggants is either parallel to the log C axis, or sloping to it at a smaller angle than the section corresponding to higher values.

Galashin, Ye. A.
PHOTOGRAPHIC REVERSAL PHENOMENA. II. PHOTOMETRY OF THE LATENT IMAGE AND THE MECHANISM OF PHOTOGRAPHIC REVERSAL. [1959] 10p. 14 refs. T-3102.
Order from LC or SLA mi$1. 80, ph$1. 80 60-14153

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 253-258.

The kinetics of formation of the photographic latent image by the effect of long wavelength radiation have been studied by means of a simple differential method of photometry. A continuous increase in the optical density of the latent image, the region of Herschel phenomena and solarization, with long wavelength light has been determined. (Author)

Gorokhovskiy, Yu. N. and Davydkin, I. M.
INVESTIGATION OF THE PROCESSED IMAGE BY DENSITOMETRY. I. SCATTERING OF LIGHT BY DEVELOPED PHOTOGRAPHIC FILMS [Issledovaniya po Densitometrii Pocherneniy. I. Rasseyaniye Sveta Proyavlennymi Fotograficheskimi Plenkami]. [1959] 16p. 11 refs. T-3095.
Order from LC or SLA mi$2.40, ph$3.30 60-14156

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 6, p. 430-439.

Indicatrices of scattering of light by densities of the specimen, which differed in this characteristic, were measured by means of a visual goniophotometer. The scattering of light by different densities, obtained by developing the specimen to various contrasts, increased in proportion to the increase in their optical density. The higher the coefficient of contrast, the higher the scattering of light by the specimen with a given optical density. The values of integral optical densities of the specimen were calculated from indicatrices of scattering and were compared with direct visual experiments. A relationship was determined between the optical density of the specimen and the solid angle of the receiver. Data were obtained on the practical admissible minimum dimensions of solid angles of the receiver during the measurements of the integral optical density. Physical bases for a mathematical characteristic description of the scattering of light by densities of the specimen by means of the so-called Callier's coefficient were analyzed. This value does not appear to be a strict measure for the light scattering, because it also includes the absorption of light by the density specimen. Two new methods are suggested for the mathematical evaluation of light scattering by specimens by: (1) The factor of light scattering q, representing the total scattered light within the total beam transmitted through the specimen $[q = 1\text{-antilog}(D_{\Sigma} - D_{\parallel})]$ and (2) the angle of scattering 2α representing the form of the indicatrix of scattering with a certain approximation.

Gorokhovskiy, Yu. N.
SCIENTIFIC DISCUSSION OF SENSITOMETRY OF BLACK-AND-WHITE AND COLOR PHOTOGRAPHIC MATERIALS. [1959] [5]p. T-3105.
Order from LC or SLA mi$1.80, ph$1.80 60-14150

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 317-319.

Topics are noted that were discussed at an expanded plenary session of the Commission on the Science of Photography and Motion Pictures of the Academy of Sciences of USSR, convened in Leningrad on April 21-23, 1959.

Moshkovskiy, Yu. Sh.
EFFECT OF SILVER HALIDE CONCENTRATION ON THE SCATTERING OF LIGHT IN AN EMULSION LAYER [Vliyaniye Kontsentratsii Galoidnogo Serebra na Rasseyaniye Sveta v Emul'sionnom Sloye]. [1959] 5p. 8 refs. T-3096.
Order from LC or SLA mi$1.80, ph$1.80 60-14155

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 6, p. 440-442.

A method is suggested for determining the light scattering in an emulsion based on the effect of a decrease in the optical density when the width of a slit is decreased. With the increase in the concentration of silver halide the light scattering decreases until $P = 1.0$, and then it starts to increase again.

Valenti, Giorgio.
PHOTOGRAPHIC APPARATUS PROVIDED WITH A PLURALITY OF LENSES, FOR GRAPHIC, PHOTOGRAPHIC, AEROPHOTOGRAPHIC REPRODUCTIONS AND FOR THE IMMEDIATE MULTIPLICATION OF A SINGLE MODEL AS WELL AS FOR MOTION PICTURE PROJECTION, tr. by C. P. 20 Jan 60, 16p. (6 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 60-15097

Trans. of Italian patent 548342, cl. XXIII, appl. 30 Jan 56, granted 24 Sep 56, printed July 57.

The photographic apparatus, particularly for photomechanical reproductions, is characterized in that it comprises at least two objective lenses with relative shutters, the camera angle of which is greater than the angle of image. It comprises devices for varying and regulating the distance between the center distances of the divers lenses. At least part of the lenses is mobile so as to regulate the optical axis of such lenses with respect to the optical axis of the apparatus. The means of actuation for at least part of the shutters pertaining to the lenses end in a single control device thus permitting the simultaneous control of such shutters. The means of actuation for at least part of the shutters, terminating in a single control device, are connected with the latter by means of coupling devices which permit the insertion or exclusion of any of the shutters from the kinematic chain terminating in the said control device. In combination with at least part of the lenses the apparatus comprises means for causing the deviation of the optical axis of such lenses in dependency on the mutual distances which it is desired to obtain between the various pictures provided by the negative. It also comprises, in combination with the principal lenses, at least one auxiliary lens adapted to permit the filming of the picture for the purpose of checking and testing. The auxiliary lens is combined with a translucent surface and/or suited for exposure by means of a reflecting surface.

Yanson, K. R.
PRE-SCREENED FILM. [1959] 6p.
Order from LC or SLA mi$1.80, ph$1.80 60-14041

Trans. of Poligraficheskoye Proizvodstvo (USSR) 1958, no. 1, p. 18-20.

Information is surveyed on (1) the pattern and functioning of prescreened photographic film, (2) the gradation characteristics of prescreened film, (3) the light-sensitivity range stipulations for the prescreened film, (4) the application of a prescreened film and its advantages, and (5) the method of preparing prescreened photographic film.

Zabello, V.
HYDROTYPE METHOD FOR FILM COPY PRINTING, tr. by J. M. H. 12 Jan 60, 6p. (1 fig. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15098

Trans. of Kinomekhanik (USSR) 1959, no. 4, p. 30-31.

A survey

Plastics

VALUABLE NEW EPOXY CONDENSATES. Feb 60, 12p. 5 refs.
Order from RIS $22.00 RIS rept. 6457

Trans. of German patent application F 10 412 (39c, 13) DAS 1 010 736, filed 19 Nov 52, pub. 19 June 57, by Farbenfabriken Bayer A. G., Leverkusen.

A process is described for preparing high-molecular weight, water-soluble, basic condensates containing reactive epoxy groups in the molecule. The process is characterized in that epichlorohydrin, or substitution products or homologs thereof which likewise contain a chlorine atom and an oxide group, or dichlorohydrin (the latter together with the commensurate amount of alkali) is reacted with basic di- or polyamines that contain at least one primary, aliphatically linked amino group, in water or organic solvents at a total concentration of less than 40%, at a pH of about 7 to 11 at the beginning and a pH of about 7 to 9.5 as the condensation progresses, at temperatures under 100°C until the resulting solutions are highly viscous, and the products obtained are then stabilized by addition of acid, possibly after being quaternized.

Kiselev, B. A.
GLASS PLASTICS (Stekloplastiki). Dec 59, 25p. 74 refs. RTS no. 1241.
Order from LC or SLA mi$2.70, ph$4.80 60-13438

Trans. of Uspekhi Khimii (USSR) 1958, v. 27, no. 9, p. 1101-1114.

A survey.

Thinius, K.
THE DISSOLVING CAPACITY OF THE SOFTENERS. [1960] 12p. 6 refs.
Order from SLA mi$2.40, ph$3.30 60-14145

Trans. of Plaste und Kautschuk (Germany) 1958, v. 5, no. 1, p. 3-5.

Softeners were determined which (1) peptise the dry nitrocellulose into completely clear and fiber-free solutions with 3 hours; (2) dissolved the nitrocellulose only more or less within 3 hours, but brought about a clear solution only with 24 hours; and (3) dissolved the dry nitrocellulose not at all or only incompletely even after 24 hours. (See also 60-14141)

Thinius, K.
THE DISSOLVING CAPACITY OF THE SOFTENERS (CONTINUATION). [1960] 13p. 7 refs.
Order from SLA mi$2.40, ph$3.30 60-14144

Trans. of Plaste und Kautschuk (Germany) 1958, v. 5, no. 2, p. 52-54.

Information is presented on the dissolving capacity for the cellulose derivatives other than nitrocellulose. (See also 60-14145)

Thinius, K.
THE DISSOLVING CAPACITY OF THE SOFTENERS (CONTINUATION AND CONCLUSION). [1960] [30]p. 20 refs.
Order from SLA mi$2.70, ph$4.80 60-14141

Trans. of Plaste und Kautschuk (Germany) 1958, v. 5, no. 3, p. 96-103.

The difference in the dissolving capacity of the o-phthalates and their terephthalates is pointed out, whereby the p-isomer yields a higher KLT because of its linear extent. (See also 60-14144, 60-14145)

Rubber and Elastomers

*KAUCHUK I REZINA (USSR) 1959 [VOL. 18] (Raw and Vulcanized Rubber). [1960]
Order from OTS $0.60, $3.50/6 mo.
Foreign $0.85, $5.00/6 mo.

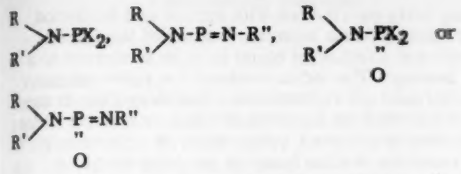
No. 8, p. 1-64, PB 141 057T-17
No. 9, p. 1-64, PB 141 057T-16

Consists of abstracts in English.

NEW POLYMERIZATION CATALYSTS FOR ORGANICALLY DISUBSTITUTED SILOXANES. Feb 60, 10p.
Order from RIS $20.00 RIS rept. 6262

Trans. of German patent application W 10 357 (39c, 30) filed 13 Jan 53, pub. 20 Jan 55, by Wacker-Chemie G. m. b. H., Munich.

A process for polymerization of siloxanes, notably diorganosiloxanes, into high-molecular weight liquid or solid elastic substances suitable for production of siloxane rubber is described, characterized in that the siloxanes are treated with phosphorus-nitrogen compounds which represent either phosphonitrile halides or phosphorous or phosphoric acid derivatives that are substituted at the nitrogen by organic radicals and may be substituted by halogen besides. Use is made of phosphorus-nitrogen compounds of formulas $(PNX_2)_n$,



where n represents a whole number of at least 3, X halogen, and R, R' and R" represent alkyl, aryl, or aralkyl radicals or hydrogen. The polymerization is effected at a temperature between room temperature and 150°C. The phosphorus-nitrogen compounds are used in amounts of 0.1 to 10% by weight relative to the starting product to be polymerized. Such organically disubstituted siloxanes are subjected to polymerization as contain, in addition to methyl groups, other alkyl, aryl or aralkyl groups.

PRESS WITH MOLD CORE MADE OF RADIALLY MOVABLE ELEMENTS FOR THE PRODUCTION OF COMPRESSED AIR TIRE TREADS, tr. by P. C. C. 8 Feb 60, 3p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15549

Trans. of German patent 223,909, cl. 63e, gr. 10, pat. 25 June 1908, pub. 6 July 10 (appl. in France 10 Aug 07) by A. Olier & Cie, France.

The invention relates to presses for the vulcanization of treads, in which the mold core conventionally consists of radially movable elements. The press is characterized in that the displacement of the smaller elements of the mold core is induced by eccentrics mounted on a common shaft, the return of the larger elements being caused by the engagement of lateral projections of the smaller circular mold elements with extensions of said larger elements. The eccentric shaft is rotated by means of a gear transmission driven by a rack whose end portion is shaped as a piston cooperating with a cylinder filled with pressure water. With this arrangement the entire drive always remains in the same horizontal plane.

Kargin, V. A., Plate, N. A., and Dobrymina, A. S.
SOME PROPERTIES OF BLOCK COPOLYMERS OF AN EPOXIDE RESIN AND BUTADIENNE NITRILE RUBBER (O Nekotorykh Svoystvakh Blok-Sopolimerov na Osnove Epoksidnoy Smoly i Butadiennitril'noyo Kauchuka). [1959].
Order from LSB $6.50 LSB-105

Trans. of *Kolloid[nyy] Zhurnal (USSR) [1958] v. 20, no. 3, p. 332-337.

Okhrimenko, I. S.
VULCANIZATION OF ELASTOMERS UNDER HIGH PRESSURES (Vulkanizatsiya Kauchukov pod Vysokim Davleniyem). Feb 60 [16]p. 33 refs. RTS 1275.
Order from LC or SLA mi$2.40, ph$3.30 60-15562

Trans. of Kauchuk i Rezina (USSR) 1958, no. 3, p. 5-11.

An investigation was made of the influence of pressures up to 10,000 kg/sq cm on the process of curing both raw and vulcanizable mixtures of elastomers, and on the properties of the resultant products. High pressures accelerated the formation of stable carbon-carbon cross linking bonds between molecules of the elastomer. When this takes place without any vulcanizing agent, special polymers possesing high quality properties are obtained. It was established on a curing basis, that the reactivity capabilities of each elastomer is determined by the degree of unsaturation and, above all, by the steric qualities and the content of external double bonds. In vulcanizing mixtures under high pressure the participation of sulphur in the formation of the vulcansate is considerably reduced: in sulphur-containing mixtures based on SKB the predominant reaction occurs between the molecules of elastomer alone. The function of intensifiers, fillers, and plasticizers, do not undergo essential changes. Incorporation of polymerization radical initiators can give ultra fast vulcanizing mixtures.

Solomon, O. and Ambrus, Carmen.
THE OBTAINING OF POLYISOPRENE SYNTHETIC RUBBER USING CATALYSTS FROM BUTYL LITHIUM AND TITANIUM TRICHLORIDE. [1959] [2]p. 13 refs.
Order from SLA mi$1.80, ph$1.80 60-10816

Trans. of Rev[ista de] Chim[ie] (Rumania) 1958, v. 9, no. 3, p. 150.

Thelamon-Meynard, C.
COLD-POLYMERISED NITRILE RUBBERS (Caoutchouces Nitrile Polymerisés à Froid) tr. by R. J. Moseley. 26 June 58 [10]p. 7 refs. Trans. no. 649; M 73.
Order from LC or SLA mi$1.80, ph$1.80 59-18718

Trans. from Bull. Lab. Rech. Cont. Caout [sic] 1957, no. 52.

The mechanical properties of the new low-temperature (about 5°C) copolymers (the Krynacs) of the Polymer Corporation are compared with those of the old grades polymerized at 50°C, and with the cold rubbers (Hycar 1041, 1042, and 1043) from B. F. Goodrich Chemical Company.

Wood and Paper

Brecht, W. and Berthold, W.
THE TESTING OF PAPER FOR SUITABILITY AS CORRUGATING MEDIUM. Jan 60, 12p. (18 figs. omitted) 8 refs.
Order from SLA mi$2.40, ph$3.30 60-14146

Trans. of Wochenbl[att für] Papierfabrik[ation] (West Germany) 1959, v. 87, no. 11/12, p. 467-478.

Robert, A. and Martin-Borret, O.
CONTRIBUTION TO THE IDENTIFICATION OF HIGH POLYMERS IN PAPER BY INFRA-RED SPECTROGRAPHY, tr. by I. L. Frewer. Jan 60, 9p. (5 figs. omitted).
Order from SLA mi$1.80, ph$1.80 60-14137

Trans. of A[ssociation] T[echnique de] l'I[ndustrie] P[apetiere]. Bull[etin] (France) 1958, no. 6, p. 195-203.

The object of this account is to show that, with infra-red spectrography, the high polymers used in paper making can be (1) quickly classified and (2) identified. We have obtained infra-red spectra of high polymers most frequently used in paper making (in their industrial state) and in the form of extracts of paper coated in the laboratory. (Author)

Stemsrud, F.
THE FINE STRUCTURE OF THE BORDERED PIT MEMBRANE OF CONIFERS, pt. 2. Jan 60, 6p. (7 figs. omitted) 5 refs.
Order from SLA mi$1.80, ph$1.80 60-14162

Trans. of Holzforschung (Germany) 1959, v. 13, no. 1, p. 16-20.

To confirm previous electron microscope findings, in accordance with which the torus of the bordered pit of pinewood in the transition zone between sapwood and heartwood is often perforated, impregnation experiments of wood with radioactive solutions were carried out. In the experiments dry pinewood was subjected to pressure impregnation and green pinewood to impregnation by dipping. The depth of penetration and absorption of preservative in the individual zones of the wood were ascertained by means of an X-ray film (autoradiography) and a Geiger-Müller counter. From the autoradiograph it appeared that the wood in the region of the inner sapwood zone next the heart is penetrated to a greater extent by the impregnating agent, so that the assumption of a relation between the membrane perforation of the bordered pit and the greater absorption of impregnating agent in this zone of the wood appears to be justified. Further, it was found that spring and summer wood absorb radiation very differently, so that if this is not taken into account the evaluation of the autoradiograph may be misleading. By determining the activity of the radioactive impregnating agent after ashing the wood it could be established that the spring wood contains more impregnating agent per unit weight and the summer wood more impregnating agent per unit volume. (Author) (See also 59-10293)

Wultsch, F.
BEATING OF HARDWOOD PULPS FOR THE PRODUCTION OF VARIOUS TYPES OF PAPER. Feb 60, 10p. (12 figs. omitted) 6 refs.
Order from SLA mi$1.80, ph$1.80 60-14284

Trans. of das Papier (West Germany) 1959, v. 13, no. 17/18, p. 407-413.

Beating tests carried out with spruce and hardwood pulps showed that a separate beating of the fibre species and a following blend is to be preferred to a joint beating. The index numbers for sheet volume, opacity, tear and medium fibre length and the drainage of the stock on the wire are thus improved. Pilot plant tests in the stock preparation of a paper mill confirmed the results found in the laboratory. A comparison of paper specimens, one of which was prepared with joint treatment, the other with separate treatment, confirmed the superiority of the paper produced from hardwood pulps with separate beating with respect to the properties mentioned above. (Author)

MATHEMATICS

*PRIKLADNAYA MATEMATIKA I MEKHANIKA (USSR) 1959, V. 23, (Applied Mathematics and Mechanics). [1960].
Order from OTS $0.60, $3.50/year
Foreign $0.85, $5.00/year

No. 4, p. 625-800, PB 141 034T-10
No. 6, p. 993-1147, PB 141 034T-9

Consists of abstracts in English.

Gel'fond, A. O.
CALCULUS OF FINITE DIFFERENCES. [1959] 7p.
Order from MDF $2.50 MDF G-148

Partial trans. (table of contents and forward) of mono. pub. Mos[cow] 1952, 479p.

Glushkov, V. M.
ONE METHOD OF AUTOMATIC PROGRAMMING. 16 Feb 60, 7p. JPRS: 2243.
Order from OTS $0.50 60-11291

Trans. of *Problemy Kibernetiki (USSR) 1959, no. 2, p. 181-184.

Sagalovich, Yu. L.
ON GROUP INVARIANCE OF BOOLEAN FUNCTIONS. [1959] 6p. 4 refs.
Order from MDF $3.00 MDF S-146

Trans. of Usp[ekhi] Matem[aticheskikh] Nauk (USSR) 1959, v. 14, no. 6(90), p. 191-195.

Quantitative relations related to an arbitrary Boolean function are obtained while keeping in mind that the function is subject to substitution of variable transformations.

Computing Devices

Kondalev, A. I.
NEW DEVELOPMENTS IN COMPUTER MATHEMATICS AND TECHNIQUES (PROCEEDINGS OF A CONFERENCE AT THE KIEV COMPUTER CENTER AN UKRAINE SSR) tr. by Morris D. Friedman.
Nov 59 [7]p. AFCRC-TN-60-130; K-198.
Order from LC or SLA mi$1.80, ph$1.80 60-15451

Trans. of Usp[ekhi] Mate[maticheskikh] Nauk (USSR) 1959, v. 14, no. 4(88) p. 237-241.

Topics are noted of papers that were read at the conference, which was held on December 1 to 3, 1958. Authors names, and in most cases the titles of the papers, are given.

Lyubchenko, G. G.
METHOD OF SELECTING LOGICAL OPERATIONS AND MECHANISMS TO EXECUTE THEM IN DIGITAL COMPUTERS. [1959] 17p. 6 refs.
Order from MDF $8.50 MDF L-130

Trans. of Ukr[ainskiy] Mat[ematicheskiy] Zh[urnal] (USSR) 1958, v. 10, no. 4, p. 375-388.

MECHANICS

Khanin, I. M., Yaremchuk, V. A., and Kupriyenko, I. G.
THE USE OF RADIOACTIVE ISOTOPES IN THE INVESTIGATION OF THE MOVEMENT OF GASES IN COKE OVENS [Primeneniye Radioaktivnykh Izotopov pri Issledovanii Dvizheniya Gazov v Koksovykh Pechakh]. June 58, 14p. 13 refs. C. T. S. no. 469.
Order from LC or SLA mi$2.40, ph$3.30 60-13224

Trans. of Koks i Khimiya (USSR) 1957, no. 10, p. 20-25.

Suggestions are presented concerning the methods of using radioactive isotopes in the investigation of the distribution of gases in regenerators, the methods of examining the recirculation of combustion gases, and of the degree of mixing of gas and air in the coke oven heating channels.

Schiller, A.
STRESSES AT THE JOINT FACE OF AUSTENITE-FERRITE WELDS. [1960].
Order from BISI 2 15s BISITS 1513

Trans. of V[ereinigung der] G[rosskessel]b[esitzer]. Mitt[eilungen] (West Germany) 1958, June, p. 176-180.

At temperature changes with uniform temperature distribution, internal stresses are set up in positively connected joints between two materials with dissimilar coefficients of expansion, as the materials are no longer able to deform freely. Formulae are presented which permit calculation of the internal stressing (according to the elastic theory) occurring at the joint face of austenitic-ferritic welds. It is shown that the stresses decrease with increase in temperature and are at a maximum at room temperature. Again it is pointed out that the stresses generally do not exceed the plastic limit of deformation of one of the two materials at the relevant temperature and that creep reduces these stresses further during service at elevated temperatures, especially at long working periods. This accords also with observations in experiments (H. Linden and H. Hennecke, ibid. pp. 65): Pressure welded austenitic-ferritic connections) carried out under the most stringent test conditions, where no defects could be detected in the joint face or in the heat-affected zones. (Author)

Skuridin, G. A.
THE DUHAMEL PRINCIPLE AND ASYMPTOTIC SOLUTIONS OF THE DYNAMICAL EQUATIONS OF THE THEORY OF ELASTICITY, I (Printsip Dyuamelya i Asimptoticheskiye Resheniya Dinamicheskikh Uravneniy Teorii Uprogosti, I) tr. by A. Pingell. 1959 [12]p. 13 refs. N R L Trans. no. 766.
Order from OTS $0.50 60-21036

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1959, no. 1, p. 3-10.

It is shown that in the presence of a system of finite discontinuities in a pulse solution, the solutions of the dynamical equations of the theory of elasticity can be presented in the form of a series (in the case of a harmonic source of oscillations) in inverse powers of $i\omega$. The coefficients of these series are jumps of the pulse solution (and jumps of its derivatives with respect to time). When $\omega \longrightarrow \infty$, the series obtained for the components of the displacement vector are asymptotic. The region of convergence of the series is not considered.

Yakovlevskiy, O. V.
THE THICKNESS OF THE TURBULENT MIXING ZONE AT THE BOUNDARY OF TWO GAS STREAMS WITH DIFFERENT VELOCITY AND DENSITY [O Tolshchine Zony Turbulentnogo Peremeshivaniya na Granitse dvukh Potokov Gaza Raznoy Skorosti i Plotnosti]. [1959] 3p.
Order from ATS $6.00 ATS-24M38R

Trans. of Akad[emiya] Nauk SSSR. Otdel[eniye] Tekh[nicheskikh] Nauk. Izvest[iya] 1958, no. 10, p. 153-155.

Isaakyan, S. M.
EDDIES IN HYDRAULIC STRUCTURES AND THEIR CAPACITY (Voronki u Gidrotekhnicheskikh Sooruzheniy i Ikh Propusknaya Sposobnost') tr. by S. E. [1959] 13p. (4 figs. omitted) 10 refs. H-3742.
Order from OTS $0.50 59-21144

Trans. of Akademiya Nauk [Armyanskoy SSR, Yerevan]. Izvestiya. [Fiziko-Matematicheskiye, Yestestvennyye i Tekhnicheskiye Nauki] 1955, v. 8, no. 3, p. 101-111.

The capacity of eddies formed both in natural water flow from under a gate and in artificial increase of eddies by passing water around eddy-forming gates was experimentally determined. Dimensionless relationships were found which may be used for approximate computations, and also for modelling the capacity of eddies on the basis of Froude Number and the ratio R/a. The root mean square deviation of proposed relationships is within 3 to 6%.

Kaario, Toivo Juhani.
METHOD OF ELIMINATION OF THE FRICTION BETWEEN A VEHICLE TRAVELING ALONG A SURFACE AND THE SURFACE, tr. by F. H. B. 9 Dec 59, 1p.
Order from LC or SLA mi$1.80, ph$1.80 60-13272

Trans. of Claim of Finnish patent 18,630, cl. 62c, 2 Jan 35.

The method is characterized in that the vehicle, equipped with a winglike airfoil, travels along the surface in such a way that the airfoil forms with the surface an angle which is open in direction of travel, whereby there is formed, depending on the form of the airfoil, a vessel open in front and otherwise more or less closed, in which there prevails an excess air pressure caused by the motion of the vehicle. This pressure together with the low pressure possibly prevailing at the upper side of the vehicle lifts the vehicle from the ground or water surface while the pressure variations taking place under the airfoil due to the movements of the airfoil hold the vehicle in balance at a constant height in direct proximity of the surface, but nevertheless free.

Kaario, Toivo Juhani.
METHOD OF LIFTING A VEHICLE FREE FROM ITS PATHWAY, tr. by F. H. B. 9 Dec 59, 1p.
Order from LC or SLA mi$1.80, ph$1.80 60-13273

Trans. of Claim of Finnish patent 26,122, cl. 62b-39, appl. laid open to public inspection 30 Sep 49, pat. granted 10 Dec 52, pub. 14 Nov 53, protection in Finland started 7 Jan 49.

A device for a vehicle which is to travel directly above a water surface is described, by which the vehicle is vertically lifted from the pathway, so that its start and motion are facilitated. The vehicle is equipped with one or more aerodynamic airfoils (sic: hydrofoils?) which, when the vehicle stands still, almost touch the pathway with their edges. The device comprises one or more compressors driven by one or more engines for blowing sufficient air under pressure into the space between the aerodynamic airfoil or airfoils (sic) and the pathway, so as to lift the vehicle to a slight, stable distance from the pathway.

METALLURGY

*METALLOVEDENIYE I TERMICHESKAYA OBRABOTKA METALLOV (USSR) 1959 (Metallography and Heat Treatment of Metals). [1960].
Order from OTS $0.60, $3.50/6 mo.
Foreign $0.85, $5.00/6 mo.

No. 10, p. 2-64, PB 141 131T-17
No. 11, p. 2-64, PB 141 131T-15
No. 12, p. 2-60, PB 141 131T-16

Consists of abstracts in English.

*METALLURG (USSR) 1959 [VOL. 4] (Metallurgist). [1960]
Order from OTS $0.60, $3.50/6 mo.
Foreign $0.85, $5.00/6 mo.

No. 11, p. 1-40, PB 141 132T-14
No. 12, p. 1-36, PB 141 132T-15

Consists of abstracts in English.

THE PHYSICS OF METALS AND METALLOGRAPHY, 1958, VOL. 6, NO. 5. Dec 59, 195p.
Order from PP $30.00/year

Trans. of Fizika Metallov i Metallovedeniye (USSR) 1958, v. 6, no. 5, p. 769-960.

SOVIET NONFERROUS METALLURGY: SELECTED TRANSLATIONS NO. 2. 15 Dec 59, 43p. JPRS: 1977-N.
Order from OTS $1.25 60-11114

Contents:
Overall Automation of a Bauxite Wet Grinding Department, by V. I. Gusarov and A. M. Samoylin. Trans. of Tsvetnyye Metally (USSR) 1958 [v. 31] no. 6, p. 26-30.
Construction of Mining Enterprises in Nonferrous Metallurgy during 1959-65, by A. F. Tyuryakov. Trans. of Shakhtnoye Stroitel'stvo (USSR) 1959, no. 3, p. 6-9.
Nonferrous Metallurgy and Technological Progress, by B. Novozhilov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 4, p. 28-31.

Broad Plan for Geological Prospecting Operations, by N. Skvertsov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 5, p. 26-27.

We Will Fulfill the First Year of the Seven-Year Plan Ahead of Schedule, by V. Fel'dman and M. Maslov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 5, p. 35-40.

Early Processing of Mercury in Southern Fergana, by A. I. Poshka and V. P. Fedorchuk. Trans. of Priroda (USSR) 1959 [v. 48] no. 5, p. 108-109.

Dust from Lead Production as One of the Sources of Obtaining Dispersed Elements, by M. A. Vinogradova. Trans. of Tsvetnyye Metally (USSR) 1959 [v. 32] no. 6, p. 39-41.

USSR ABSTRACTS OF METALLURGY; PART A, 1959, NO. 2. Feb 60, 97p.
Order from PP $25.00/year

Trans. of abstracts of a highly scientific nature from Referativnyy Zhurnal. Metallurgiya (USSR) 1959, no. 2.

U.S.S.R. ABSTRACTS OF METALLURGY; PART A, THE SCIENCE OF METALS, 1959, NO. 4. Feb 60, 88p.
Order from PP $25.00/year

Trans. of abstracts of a highly scientific nature from Referativnyy Zhurnal. Metallurgiya (USSR) 1959, no. 4.

Aguet, E.
RESULTS OBTAINED FROM RUNNING TWO GAS TURBINE PLANTS IN BELGIAN METALLURGICAL WORKS. [1960].
Order from BISI : 4 BISITS 1494

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] 15 Oct, p. 1479-1483.

Two 7 1/2 mw gas turbine units at the Societe Metallurgique Hainaut-Sambre, Couillet: points of interest in their construction, troubles, effect of dirt, and need to purify gas to 1-2mg/Nm^3. 7 1/2 mw gas turbine unit at the Societe Anonyme Cockerill, Seraing; using without intermediate cooling of the air, controlling the amount of blast, starting the plant, and acceptance tests with blast-furnace waste-gas, and on burning mixtures of waste gas and gas oil. (Author)

Danilov, F. A. and others.
BASIC PROBLEMS IN THE THEORY OF PIERCING. [1960].
Order from BISI : 9 BISITS 1354

Trans. of mono. Proizvodstvo Stal'nykh Trub Goryachey Trokatkoy, Moscow, 1954, Chap. 6, p. 58-93.

The calculations and expressions for the forces exerted and power required are given. Piercing rate and billet engagement are also dealt with. (J. Iron Steel Inst. abstract)

Danishevskiy, S. K.
AN APPARATUS FOR CALIBRATION OF TUNGSTEN-MOLYBDENUM THERMOCOUPLES (Ustanovka dlya Graduirovki Vol'fram-Molibdenovykh Termopar). 1960 16p. 6 refs. (foreign text included)
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3829

Trans. of Zavodskaya Laboratoriya (USSR) 1956, v. 22, no. 10, p. 1235-1240.

Dickens, P., Esche, W. v. d., and Willems, J.
APPRAISAL OF BEHAVIOR OF ORES AND SINTERS IN BLAST FURNACE. Feb 60, 8200 words.
Order from HB $16.20 HB-4662

Trans. of Stahl und Eisen (West Germany) 1959, v. 79, no. 13, p. 905-917.

Need of blast-furnace operator for more information on the prospective behavior of ores and sinters in smelting to select the most appropriate burden for efficient reduction. Authors' study of mechanical stability of ores and sinters and their softening under load at high temperatures in a reducing atmosphere. Use of the refractoriness-under-load test for cube and cylinder-shaped specimens. Determination of softening, fusion, and flow points in hot-stage microscope. Comparison of results of the two methods; which method is preferable for sinters? Reduction experiments in gas stream (a) with city gas according to L. Mathesius; and (b) with a 65% N + 35% Co mixture. New experimental arrangement with continuous recording of gas composition. Reduction curves for Venezuela and Swedish ores; effect of variation of gasflow rate. Microscopic study of ore reduction in hot-stage microscope: structural make-up of the several ores in their initial state and after reduction. Proposal for an Ore Data Card Index File as a valuable aid to the B. F. operator: explanation of the various items listed on the card. General Discussion-Effect of gas flowrate on % reduction; degree of reduction with sinter machine vs. rotary kilns; macroporosity as an important factor: in studies of the reduction of ores and sinters, the same particle size should be used as will go into the blast furnace. (HB abstract)

Dokkina, D. M. and Petrova, E. I.
DETERMINATION OF TANTALUM IN TITANIUM ALLOYS BY ULTRAVIOLET SPECTROPHOTOMETRY. [1960].
Order from BISI : 2 BISITS 1642

Trans. of Zavods[kaya] Lab[oratoriya] (USSR) 1957 [v. 23] no. 4, p. 421-422.

Dudko, D. A., Sterenbogen, Yu. A., and Potap'evskiy, A. G.
THE MULTIPLE-RUN WELDING OF THICK METAL IN A PROTECTIVE MEDIUM OF CARBON-DIOXIDE GAS (Mnogoprokhodnaya Svarka Tolstogo Metalla v Zashchitnoy Srede Uglekislogo Gaza). Jan 60, 9p.
RTS no. 1210.
Order from LC or SLA mi$1.80, ph$1.80 60-13469

Trans. of Avtomaticheskaya Svarka (USSR) 1957 [v. 10] no. 3 [54] p. 58-63.

Heynert, G. and Willems, J.
THE REACTIONS OCCURRING IN THE BLAST FURNACE AS SEEN FROM THE KINETIC POINT OF VIEW. [1960].
Order from BISI 5 10s BISITS 1518

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] Oct, p. 1545-1554.

General principles relating to the flow of materials and to the chemical reaction rate. Reactions occurring in the blast furnace. Temperature pattern and gas composition. Reactivity of ores and coke velocity. Constant of the Boudouard reaction. Concentration drop and coversion rate. Factors affecting the intensity of gasification. Final temperature of the kinetic reaction. Length of the deoxidation zone. Conclusions on blast furnace operations. (Author's summary)

Hirsch, W. and Fritze, H. W.
ON HOT CRACKING OF AUSTENITIC CHROMIUM-NICKEL WELDS. [1960].
Order from BISI 4 BISITS 1633

Trans. of Schweissen u[nd] Schneiden (West Germany) 1956 [v. 8] no. 3, p. 81-85.

The tendency to hot cracking of welds is mainly caused by molten phases in the grain boundaries shortly before the freezing of the weld metal. The cooling stresses which appear act in these phases. There are connections between the soludus temperature of the weld metal and the tendency to hot cracking, particularly unfavourable are the films of a eutectic nature at the grain boundaries. The influence of the structure formation of grain size and of various alloyed elements on the tendency to hot cracking of austenitic Cr-Ni-steel has been discussed and especially the effects of the niobium content. An attempt to show the favourable influence of ferrite has been made. Sometimes hot cracking can start from the parent metal. (Author)

Khvichiya, A. T.
ELECTRICAL RESISTANCE OF CHROMITE-COAL MIXTURES DURING COKING. Feb 60, 1400 words.
Order from HB $3.00 HB-4689

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metallurgiya (USSR) 1959, no. 5, p. 41-44.

Study of effect of chromium and of carbonaceous binders on the electrical resistance of coals being coked; usefulness of data for proper furnace operation. Experimental setup and procedure. Precautions taken in present work. Specific electric resistance of chrome ore + coal mixtures as function of temperature and composition. Analysis of diagrams. (HB abstract)

Koval', I. F.
RELATIONSHIP BETWEEN BLAST TEMPERATURE AND TEMPERATURE DISTRIBUTION OVER THE HEIGHT OF THE BLAST FURNACE. Feb 60, 3100 words.
Order from HB $7.80 HB-4696

Trans. of Izv[estiya] V[yashikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metallurgia (USSR) 1959, no. 5, p. 19-27.

Investigation of the problems connected with blast-furnace wind temperature. Particulars on a 1/20 scale model blast furnace dimensioned so as to make the experimental results obtained with it directly applicable to industrial blast furnaces. Construction and equipment of model, set up next to, and connected with, an industrial blast furnace. Temperature distribution over height of blast furnace as function of temperature of blast. Nature of irregularities in gas temperature distribution at the four furnace levels studied. Effect of light vs. heavy ore charges on temperature distribution; effect of increased wind blown at constant blast temperature. (HB abstract)

Lueg, W. and Pawelski, O.
THE HYDRAULIC 25-TON BAR DRAWING BENCH OF THE MAX-PLANCK-INSTITUTE FOR IRON RESEARCH AND ITS POSSIBILITIES OF USE. [1960].
Order from BISI 4 BISITS 1476

Trans. of Stahl u[nd] Eisen (West Germany) 1958 [v. 78] 11 Dec, p. 1812-1815.

After allusion to the requirements to be met by an experimental machine, follows a detailed description of the Institute's new hydraulic 25-ton bar drawing bench. The mode of operation of the bar pushing-in device is explained, and a supplementary device for the pushing-in of thin bars is mentioned. The elucidation of the hydraulics diagram illustrates the machine's possible mode of operation, the drawing with the back pull and the stretching. This is followed by a description of equipment for measuring the loads, the lengths of path, and the speeds of drawing. The many uses of the bar drawing bench are discussed in the light of the experiments carried out up to present, and the following are described: drawing and pushing-in experiments with round and rectangular bars; temperature measuring of wires with varying speeds of drawing; and stretching of reinforced concrete steels. (Author)

Metz, P. and others.
PRODUCTION OF STEEL FROM HIGH PHOSPHORUS PIG IRON BY TOP BLOWING OF OXYGEN WITH LINE POWDER. [1960].
Order from BISI £5 10s BISITS 1576

Trans. of Stahl u[nd] Eisen (West Germany) 1960 [v. 80] 7 Jan, p. 20-27.

History of development of the process described. The course of refining in the LD - AC process. Investigation of some metallurgical aspects. Relation between the carbon and the oxygen content of the metal. Relation between the phosphorus content of the metal and the iron content of the slag. Iron content of the slag and the yield of metal. Oxidation of the metal. Other factors in dephosphorisation. Desulphurisation. Slagging of manganese. Nitrogen content. Works results. (Author)

Murski, Cezary.
PROBLEMS OF ECONOMIC AND TECHNICAL PROGRESS IN THE METALLURGICAL INDUSTRY. 29 Sep 58, 15p. JPRS(DC)-L-467.
Order from OTS $0.50 PB 141 178T

Trans. of Wiadomosci Hutnicze (Poland) 1957, v. 13, no. 7-8, p. 235-242.

Neyfel'd, I. Ye. and Fal'kevich, A. S.
IMPROVED WELD INSPECTION METHODS: MAGNETOGRAPHIC METHOD. Feb 60, 1700 words, 1 ref.
Order from HB $4.85 HB-4734

Trans. of Svarochnoye Proizv[odstvo] (USSR) 1959, no. 2, p. 19-21.

Report on improvements made in recent months to apparatus for the magnetographic inspection of welds, developed at authors' Institute and first described in 1955 [see Brutcher Translation #3729]. Lessons learned in testing over 20,000 butt welds in 12-30 inch pipelines with the magnetograph; maximum thickness of pipe walls that can be scanned. Dependability, productivity, and cost of method compared with radiography (X- and gamma-rays). Precautions to be taken when using the magnetographic method to avoid spurious flaw indications. Basic improvements to tape-moving mechanism; solenoid and discharger and simplified disk magnet of magnetograph. Particulars on motorized field-testing laboratories, now in series production. Merits of a combination of 100% magnetographic inspection of pipeline butt welds, supplemented by radiographic inspection of all rejects. (HB abstract)

Pavlov, I. M.
RESEARCH ON THE ROLLING PROCESS. [1960].
Order from BISI £8 BISITS 1542

Trans. of mono. Metallurgiya S. S. S. R. 1917-1957, ed. by I. P. Bardin, Moscow, 1959, v. 2, p. 56-81.

A chapter of the book giving an historical survey and review of theories of rolling pressure and deformation. (J. Iron Steel Inst. abstract)

Pogodin-Alekseyev, G. I. and Zaboleyev-Zotov, V. V.
NEW PROCESS FOR PRODUCTION OF ALLOYS [Novyy Sposob Prigotovleniya Metallicheskikh Splavov] Feb 60, 1000 words.
Order from HB $3.50 HB-4779

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 7, p. 25-26.

Report on a new method for producing alloys by which the main component is added in the solid state either in dispersed form or in that of a rod, to a molten mixture of the remaining part of the alloy, uniform distribution of the principal component being ensured by sonic or ultrasonic vibrations. Experimental arrangement and procedure. Preparation of an alloy of lead with tungsten carbide; structure. Importance of a sufficient input of (ultra)sonic energy. Applications and general advantages of method over casting and sintering; specific merits when compared with powder metallurgy. (HB abstract)

Pridantsev, M. V.
NEW STEELS AND ALLOYS, METAL WORKING AND HEAT TREATMENT (Raboty v Oblasti Izyskaniya Novykh Staley i Splavov, Metallovedeniya i Termicheskoy Obrabotki). [1959].
Order from LSB $6.00 LSB-103

Trans. of Stal' (USSR) 1957 [v. 17] no. 11, p. 1006-1010.

Rudenko, L. N. and Rostovtsev, S. T.
REDUCTION OF IRON OXIDES BY CARBON MONOXIDE, HYDROGEN, AND MIXTURES THEREOF. Feb 60, 3900 words.
Order from HB $8.90 HB-4693

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metallurgiya (USSR) 1959, no. 4, p. 3-12.

Inconsistencies in available literature data on the reduction rates of iron oxides by hydrogen and carbon monoxide. Authors' experimental arrangement and procedure, intended to give fully dependable results. Quantitative and qualitative changes in relation between reduction rates of iron oxides by hydrogen and carbon monoxide as function of conditions and stage of reduction process. Advantages of carbon monoxide during first stage of process at low and medium temperatures; advantages of hydrogen during second and third stages; also in presence of high resistance to internal diffusion. Peculiar kinetic tendencies resulting from addition of hydrogen to carbon monoxide and their underlying causes. (HB abstract)

Samsonov, G. and Paderno, V.
INTERNATIONAL ACADEMIC RELATIONS OF THE INSTITUTE OF POWDER METALLURGY AND SPECIAL ALLOYS OF THE UKRAINIAN ACADEMY OF SCIENCES. 19 Feb 60, 4p. JPRS: 1174-D.
Order from OTS $0.50 60-31055

Trans. of Akademiya Nauk URSR, Kiev. Visnyk, 1959, v. 30, no. 7, p. 64-66.

Sandler, N. I.
ON THE ORIGIN OF COLOURED SPOT ON TIN-PLATE. [1960].
Order from BISI £1 10s BISITS 1570

Trans. of Stal' (USSR) 1958 [v. 18] Metallography and Heat Treatment Suppl, p. 247-250.

The bright surfaces of plates prepared for tinning sometimes show matt spots which remain uncovered by the tin. Investigations, with special instruments are described. The findings show that the spots appear after annealing the rolls with the steel sheet and suggest a thin oxide layer, difficult to remove by etching, but easily removable with polishing. Below this layer the metal structure is normal. (J. Iron Steel Inst. abstract)

Smolyarenko, D. A. and Kaplan, T. S.
STANDARDIZATION AND CLASSIFICATION OF PRECISION ALLOYS. 21 Jan 60, 15p. 4 refs.
JPRS: 1128-D.
Order from OTS $0.50 60-31028

Trans. of Standartizatsiya (USSR) 1959, no. 3, p. 13-18.

Sorokin, P. Ya.
THE BALANCE SHEET OF AN EXPERIMENTAL MELT IN AN OXYGEN BLOWN CONVERTER. [1960].
Order from BISI £4 5s BISITS 1649

Trans. of Stal' (USSR) 1958 [v. 18, no. 11] p. 987-992.

An analysis of the materials and the heat balance sheets of an experimental melt, carried out in a 50-kg. laboratory converter, blown with oxygen, enabled us to determine that the high metal loss in burning is due to the local overheating of metal and, therefore, evaporation of certain elements. The influence of this factor can be minimized by applying finely dispersed bottom blowing and by addition of iron ore. (Author)

Stockl, E.
ELECTROCHEMICAL POLISHING OF THE INTERNAL SURFACES OF TUBES. [1960].
Order from BISI £2 BISITS 1620

Trans. from Blech (West Germany) 1959, Oct.

The difficulties of finishing the insides of tubes are noted and measured roughnesses before and after electropolishing are shown. The device used is illustrated and advantages are set out. (J. Iron Steel Inst. abstract)

Treyster, Yu. Ya.
BLAST FURNACE STOCK LEVEL INDICATED BY ULTRASONIC MEANS. Feb 60, 1400 words.
Order from HB $3.40 HB-4676

Trans. of *Metallurg (USSR) 1959 [v. 4] no. 5, p. 11-13.

Possibility of truly accurate and dependable measurement of stock level in blast furnace by use of ultrasonic indicator (magnetostrictive generator). General view of indicator for practical use; circuit diagram. Example of oscillograms and their interpretation. Conclusions drawn from two months' practical service; description and block diagram of a new, more powerful indicator incorporating the lessons learned during the trials. (HB abstract)

Turchenev, N. I.
THE MAINTENANCE OF CONSTANT QUALITY OF METALLURGICAL COKE WITH REGARD TO MECHANICAL STRENGTH [Obespecheniye Postoyannogo Kachestva Metallurgicheskogo Koksa po Mekhanicheskoy Prochnost]. Apr 58, 8p. 2 refs.
C. T. S. no. 440.
Order from LC or SLA mi$1.80, ph$1.80 60-13053

Trans. of Koks i Khimiya (USSR) 1957, no. 4, p. 18-23.

The laboratory and industrial petrographic analysis of coal, and the effect of tie plastometric index of the charge over a wide range are discussed. The work suggests the possibilities of controlling the quality of coke and its mechanical properties.

Weber, K. -H.
RING ROLLING AND THE CONSTRUCTION OF RING MILLS (WITH DISCUSSION). [1960].
Order from BISI £7 15s BISITS 1555

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] 24 Dec, p. 1912-1923.

The use of bars or specially cast ingots for rings is discussed, and a rough experiment to indicate the metal flow during ring rolling is described. After some notes on rolls and drive motors various types of ring mills for roughing and finishing, including some automatic ones, are described. In the discussion E. F. Dick describes an experiment from which he drew different conclusions about metal flow from those of the author. (Translator's abstract)

Ferrous Metals

*STAL' (USSR) 1959 [V. 19] NO. 12, P. 1057-1142. (Steel). [1960] 1v. SOV-133-59-12-(1-26)/26.
Order from OTS $0.70, $4.00/6 mo. PB 141 136T-19
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

Akimenko, A. D. and Skvortsov, A. A.
STUDY OF HEAT TRANSFER IN THE MOLD OF CONTINUOUS-CASTING MACHINES FOR STEEL. Feb 60, 2800 words.
Order from HB $6.85 HB-4735

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metall[urgiya] (USSR) 1958, no. 12, p. 45-50.

importance of precise data on heat transfer from billet to mold (cooling water) for correct mold design. Determination of heat flow from equations covering mold wall/cooling water; inside copper mold wall; and in air gap between inner mold wall and billet. Effect of percentage of hydrogen (from mold lubricant) present in air gap, upon heat transfer. Are high cooling water flow rates justified? How does the reciprocating motion of the mold affect the heat transfer? Usefulness of results of study for the design of new molds, especially the calculation of cooling water requirements, mold dimensions, etc. (HB abstract)

Antropov, O. F., Gurevich, Yu. G., and Mokhir, E. D.
EFFECT OF VACUUM TREATMENT ON PROPERTIES OF STEEL. Feb 60, 1400 words.
Order from HB $3.40 HB-4704

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metallurgiya (USSR) 1958, no. 12, p. 17-20.

Report on experimental 65-lb steel heats: (A) remelted in vacuum, poured in air; (B) remelted and poured in vacuum; (C) remelted and poured in air; but held in vacuum for 15 minutes prior to pouring. Steels studied: (1) 0.30% C, 1 Mn, 1 Si, 1.1 Cr, 1.6 Ni; (2) 0.30% C, 2.2 Si, 13 Cr, 6.5 Ni; (3) 1% C, 1.5% Cr bearing steel. Effect of the three melting and pouring practices (vacuum: 5-10 mm Hg) on hydrogen, nitrogen, and oxygen contents; number and length of hairline cracks and mechanical properties; nonmetallic inclusion content. (HB abstract)

Belyakov, A. I.
MANUFACTURE OF COLD ROLLED STEEL FOR USE IN TRANSFORMERS (Proizvodstvo Kholodnokatannoy Transformatornoy Stali). May 58, 6p. C. T. S. no. 453.
Order from LC or SLA mi$1.80, ph$1.80 60-13048

Trans. of *Metallurg (USSR) 1957 [v. 2] no. 5, p. 22-24.

Doroshek, S. I., Lapkin, N. I., and Shubin, G. N.
THE CHANGE IN DUCTILITY OF TRANSFORMER STEEL DURING THE COOLING PROCESS (Izmeneniye Plastichnosti Transformatornoy Stali v Protsesse Okhlazhdeniya). July 58, 6p. 2 refs. C. T. S. no. 464.
Order from LC or SLA mi$1.80, ph$1.80 60-13314

Trans. of *Fizika Metallov i Metallovedeniye (USSR) 1957 [v. 4?] no. 1, p. 171-176.

The kinetics of the change in ductility of hot-pressed transformer steel during the cooling process after low-temperature annealing without a protective medium were studied. The influence of the rate and temperature range of the cooling on the ductility of transformer steel was established by the method of slow cooling after annealing. The change in strength of high-alloy transformer steel during the cooling process after annealing is described by a curve having a maximum. This regularity is clearly expressed by the step-wise cooling method. Accelerated cooling after annealing increases the strength of transformer steel. Sufficiently high ductility of transformer steel, without significant reduction of the magnetic properties, can be achieved by an optimum cooling regime. The presence of coarse cementite even on the ferrite grain boundaries, although it increases the brittleness of the steel, is not the sole cause of this. Apparently the real cause of the reduction in strength of transformer steel may be the processes governing the known phenomenon of high-temperature (tempering) brittleness.

Edneral, F. P.
USE OF OXYGEN IN PRODUCTION OF ELECTRIC STEEL. Feb 60, 2700 words.
Order from HB $4.80 HB-4460

Trans. of Russian mono. Primeneniye Kisloroda v Metallurgii (Use of Oxygen in Metallurgy) Moscow, 1957, p. 285-289.

Special features of production of low-carbon stainless steel, especially 18-8 Ti steel, in medium-capacity arc furnaces, with injection of oxygen. Melting practices at several major USSR works: data on charging materials, yields, power consumption, oxygen and lance consumptions, refractories wear, etc. Production of alloy constructional and tool steels, and of carbon steels. Possibilities opened up by use of oxygen in electric furnace. (HB abstract)

Funke, P. Jr. and Lueg, W.
INFLUENCE OF AGEING ON THE PRECIPITATION PHENOMENA OCCURRING IN TEMPER-ROLLED SHEETS MADE OF DEEP-DRAWING STEEL. [1960].
Order from BISI BISITS 1561

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] [1] Oct, p. 1398-1411.

Strain and quench ageing and their interpretation by the dislocation theory. Relationship between yield point behavior, tendency to form stretcher strains and precipitation phenomena. Our tests: effect of different ageing conditions on the electrical resistance of uniformly and irregularly deformed samples of sheet. Number of passes and roll diameter as variables of the effect. Metallographic assessment of precipitates in steel of low carbon content. Test results: change in the electrical resistance depending upon the time of ageing. Conditions recommended for temper-rolling after particular consideration of the behavior on ageing. (Author)

Gulyayev, B. B. and Borovskiy, Yu. F.
THE FORMATION OF BURN-ON ON STEEL CASTINGS [Formirovaniye Prigara na Stal'nykh Otlivkakh]. Dec 59, 14p.. RTS no. 1239.
Order from LC or SLA mi$2.40, ph$3.30 60-13465

Trans. of Liteynoye Proizvodstvo (USSR) 1957, no. 6, p. 5-7.

In general, the processes of interaction between the metal and the moulding material on the surfaces of castings proceeds in the following manner. On casting, molten metal infiltrates into the pores of the moulding material and causes first the development of the mechanical phase in the formation of burn-on, which ends with the formation of a hard crust on the surface of the casting. As a result of the reaction between the metal and the oxygen of the atmosphere, oxides are formed, which by melting, penetrate into the moulding material, entering into chemical reaction with it and causing the development of the second chemical phase in the formation of burn-on. The intensity of growth of the contact zone during the period of the chemical phase of the formation of burn-on proceeds in accordance with a parabolic law and requires a very long time. The contact zone is divided into the following areas: an area in which the formation of cristobalite takes place and in which new minerals are formed, an area in which tridymite is formed, and an area in which the quartz grains are subjected to insignificant changes. The development of the chemical phase in the formation of burn-on ceases almost completely when the temperature of the surface of the casting cools down to 800°C. (Author)

Hrivnak, I.
THE EFFECT OF COLD DEFORMATION ON THE STRUCTURE OF AUSTENITIC GRAINS (AN ELECTRON MICROSCOPE STUDY). [1960].
Order from BISI £5 10s BISITS 1509

Trans. of Hutnicke Listy (Czechoslovakia) 1959 [v. 14] no. 6, p. 507-511.

Preface. Introduction. Methods of preparation of the specimens. The internal structure and growth patterns in the cast state. The effect of cold deformation on the internal structure. Conclusions. (Contents list).

Imai, M. and others.
ELIMINATION OF HYDROGEN AND NITROGEN FROM STEEL BATHS BY FLUSHING WITH ARGON. Feb 60, 900 words.
Order from HB $2.90 HB-4789

Trans. of Tetsu to Hagane (Japan) 1957, v. 43, no. 3, p. 45-46.

Trial heats of 3% Ni, 0.8 Cr, 0.3 Mo steel in 20-ton basic arc furnaces flushed with A to lower the H_2 content. Procedure. Effect of treatment on composition, especially H_2 and N_2 contents at different stages of heat; how much A gas to use for best results; effect of atm. humidity. (HB abstract)

Kasatkin, B. S.
BRITTLE FAILURE OF LOW-CARBON STEEL WELDS [Khrupkoye Razrusheniye Metalla Nizkouglerodistykh Svarnykh Shvov]. Feb 60, 1900 words.
Order from HB $4.80 HG-4786

Trans. of Avtomat[icheskaya] Svarka (USSR) 1958, v. 11, no. 11, p. 71-80.

Study of characteristics of low carbon steel welds in regard to ductile-brittle transition temperature. Weld metal composition: 0.05% C, 0.5 Mn, 0.22 Si, 0.038 P, 0.032 S. Particulars on electrode wire and flux compositions. Testing setup for cold shortness and procedure. Etchants for primary and secondary structures. Notched-bar toughness of weld metal as function of testing temperature: critical embrittlement temp. Micrographic analysis results and their interpretation in regard to development of microcracks. Definition and characteristics of the two stages leading to brittle failure; their similarity with those of hot-rolled low-carbon basic open-hearth steel. (HB abstract)

Kravchenko, V. F., Enekes, S. and others.
EFFECT OF VIBRATIONS ON QUALITY OF [RIMMED-STEEL] INGOTS. Feb 60, 4600 words.
Order from HB $12.50 HB-4759

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Chern[aya] Metall[urgiya] (USSR) 1959, no. 7, p. 23-34.

Study of optimum conditions of vibration (duration, starting time, etc.) for higher pouring rates of rimming steel, improved ingot structure, better distribution of blowholes and nonmetallic inclusions, and less segregation. Experimental procedures; arrangement for determining volume and composition of gases escaping during solidification. Effect of vibration at 1470 cpm and 1 mm (0.04 in) amplitude on rate of solidification; on thickness of sound ingot skin; rate of gas evolution; distribution of oxygen and nitrogen, and nonmetallic inclusions (sulfides, oxides); and on chemical inhomogeneity of ingot. Vibration time needed for a good thickness of sound ingot skin. Savings on pouring time made possible by vibration. Mechanism of formation of rimmed-steel ingots: location of blowhole nuclei and precipitation of sulfides. (HB abstract)

Leitner, F. and Rosegger, R.
EFFECT OF COOLING AND SPEED OF BILLET MOVEMENT IN CONTINUOUS CASTING UPON HOMOGENEITY OF CARBON CONSTRUCTIONAL STEEL. Feb 60, 1300 words.
Order from HB $3.70 HB-4772

Trans. of Berg- und Hüttenm[ännische] Monatshefte (Austria) 1959, v. 104, no. 10/11, p. 222-224.

Plant-scale trials on effect of intensity of secondary cooling and rate of billet withdrawal on soundness of 0.15-0.45% C steel billets from electric furnace.... Results of study; most efficient arrangement of spray nozzles. (HB abstract)

L'vov, [G.] K.
PECULIARITIES OF TRANSFORMATIONS DURING RAPID RECRYSTALLIZATION OF STEEL. [Osobennosti Prevrashcheniy pri Skorostnoy Rekristallizatsii Stali] Feb 60, 800 words.
Order from HB $2.30 HB-4716

Trans. of Nauchn[yye] Doklady Vyssh[ey] Shkoly. Metallurgiya (USSR) 1959, no. 1, p. 203-205.

Promise of a basically new process annealing method for involving induction heating, for cold-reduced steel (strip, wire, etc.) consisting in rapid brief heating to a high temperature and fast cooling. Economies possible with equipment needed. Effect of holding time (1-4 seconds) at 650 and 850°C upon mechanical properties and microstructure of 0.08% C rimmed boiler steel. Particulars on the four periods of changes in properties and structure. Absence of solution of carbide in ferrite; resistance to aging of steel subjected to proposed process anneal. (HB abstract)

Moldavskiy, O. D.
EFFECT OF STEEL COMPOSITION AND DEOXIDIZING PRACTICE ON PHOSPHORUS SEGREGATION. Feb 60, 1000 words.
Order from HB $2.70 HB-4784

Trans. of Akad[emiya] Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya]: Met[allurgiya] i Toplivo, 1959, no. 5, p. 126-127.

Study of the possibilities open for minimizing the harmful effects of phosphorus in steel, such as segregation and intergranular precipitation, with special reference to action of silicon, carbon and various deoxidizers, on phosphorus segregation. Experimental procedure. Metallographic findings as to effect of higher or lower carbon and silicon on behavior of phosphorus. Effect of deoxidation of steel with 0.3% Al; minimum aluminum addition needed for neutralizing the harmfulness of P. Conclusions. (HB abstract)

Paidassi, J.
A STUDY OF THE PRECIPITATION OF Fe_3O_4 IN THE SCALE PRODUCED ON IRON AT HIGH TEMPERATURES. [1960].
Order from BISI £7 5s BISITS-1469

Trans. of Rev[ue de] Mét[allurgie] (France) 1955 [v. 52] no. 11, p. 869-886.

The precise conditions of formation of Fe_3O_4 in iron oxide films has been studied by the microscopical examination of iron specimens heated at elevated temperatures. The formation of Fe_3O_4 inside films of ferrous oxide is due to the decomposition of FeO during cooling. (J. Iron Steel Inst. abstract)

Pridantsev, M. V. and Levizon, Kh. Sh.
THE EFFECT OF HEAT TREATMENT ON THE PROPERTIES OF RIMMING LOW-CARBON STEELS (Vliyaniye Termicheskoy Obrabotki na Svoystva Kipiyashchikh Staley). Aug 58 [14]p. 6 refs. C. T. S. no. 492.
Order from LC or SLA mi$2.40, ph$3.30 60-15575

Trans. of Stal' (USSR) 1956 [v. 16] no. 11, p. 1006-1015.

The application of heat treatment to low-carbon rimming steels, possessing rapid rates of cooling, makes it possible to produce a practically non-aging metal with improved physico-mechanical characteristics and a considerable economic effect, fully adequate to the replacement of killed steels of corresponding composition. (Author)

Rossard, C. and Blain, P.
INFLUENCE OF VARIOUS TRACE ELEMENTS ON THE FORGEABILITY OF STEEL. [1960].
Order from BISI £3 BISITS-1565

Trans. of Rev[ue de] Mét[allurgie] (France) 1959 [v. 56] p. 175-180.

Samarin, A. M. and Novik, L. M.
LADLE AND MOULD TREATMENT OF LIQUID STEEL UNDER VACUUM (Obrabotka Zhidkoy Stali pod Vakuumom v Kovshe i Izlozhnitse). July 58, 9p. C. T. S. no. 494.
Order from LC or SLA mi$1.80, ph$1.80 60-13323

Trans. of [Akademiya Nauk SSSR]. Inst[itut] Metall[urgii]. Trudy, 1957 [v. 1] p. 39-50.

Laboratory and industrial experiments carried out in 1952-1954 on the vacuum treatment of effervescing Bessemer steel, in the ladle and in the mould, showed that at a residual pressure of 70 to 140 mm Hg, the processes of deoxidation of the metal by carbon and separation from the steel of dissolved gases, occur with great intensity. In the course of vacuum treatment, which lasts 12 to 14 min, the oxygen content of effervescing steel diminishes 4 to 10 times, the nitrogen content decreases by 30 to 50 percent; at the same time the effervescing steel becomes still and contains 0.004 to 0.005 percent O_2. Sulphur prints of ingot and rolled specimens of effervescing steel, which had been treated under vacuum in the ladle, differ little from prints of dead-melt steel in the majority of cases. The steel is sound. Zonal segregation is nearly absent. Segregation of elements in the ingot is weakly defined. Vacuum treatment raises the plasticity of Bessemer steel, particularly at temperatures below zero, and displaces the onset of cold shortness to the -30° to -50°C region.

Sejnoha, R. and Prochazka, L.
CONTRIBUTION TO THE PROBLEM OF THE PRODUCTION OF N 80 NORMALISED OIL TUBES FROM MANGANESE STEEL. [1960]
Order from BISI £5 BISITS 1539

Trans. of Hutnicke Listy (Czechoslovakia) 1959 [v. 14] no. 7, p. 569-573.

Tavadze, F. N. and Bayramashvili, I. A.
NATURE OF THE X-PHASE [IN CAST IRON] [O Prirode X-Fazy]. Feb 60, 2000 words.
Order from HB $4.75 HB-4520

Trans. of Liteynoye Proizvodstvo (USSR) 1958, no. 11, p. 18-20.

Ordinary gray irons, malleable, and nodular irons studied for inclusions described as X and phase and X' phase. Effect of Si on microhardness of ferrite and of X' phase. X' phase taking the place of graphite in malleable and ductile irons. Role of oxidation... Distinct features of X and X' explained by micrographs. (HB abstract)

Tavadze, F. N. and Essen, M. A.
TRANSFORMATION OF GRAPHITE INCLUSIONS IN CAST IRON SATURATED [IN SOLID STATE] WITH MAGNESIUM. Feb 60, 2300 words.
Order from HB $4.90 HB-4713

Trans. of Liteynoye Proizvodstvo (USSR) 1959, no. 6, p. 15-18.

Arrangement and procedure for study of inoculation of cast iron in solid state with magnesium (up to 2%). Variation of carbon content of specimens and effect of pressure acting on them while being inoculated with magnesium. Sequence of changes from flake to nodular shape of graphite and effect of properties of diffusing element on them. Diffusion of magnesium. Factors affecting inoculation of cast iron in liquid and solid states. (HB abstract)

Veh, P. O.
PRESENT-DAY POSSIBILITIES OF LOW-SCALE AND SCALE-FREE HEATING OF STEEL FOR HOT WORKING. [1960].
Order from BISI £4 BISITS 1625

Trans. of Industrie Anzeiger (West Germany) 1959 [v. 81] 7 Apr, p. 410-412.

The use of combustion gases as protective atmospheres for furnaces and various types of furnaces and induction-heating equipment are reviewed and diagrams are given. (J. Iron Steel Inst. abstract)

Wartmann, R.
CALCULATION OF THE REHEATING PROCESS OF STEEL INGOTS AND COMPARISON WITH THE RESULTS AS MEASURED. [1960].
Order from BISI £5 5s BISITS 1439

Trans. of Stahl u[nd] Eisen (West Germany) 1959 [v. 79] 14 May, p. 703-711.

The problem of reheating large steel ingots without inducing too large temperature differences between surface and core is treated mathematically. The results of the numerical calculations carried out on computers are in good agreement with experimental results.

Yefroymovich, Yu. Ye.
SIMULATING AND CONTROLLING COMPUTERS FOR ARC STEELMAKING FURNACES [Modeliruyushchiye i Reguliruyushchiye Vychislitel'nyye Ustroystva dlya Dugovykh Staleplavil'nykh Pechey]. [1960].
Order from BISI £6 5s BISITS 1528

Trans. of Stal' (USSR) 1957 [v. 17] July, p. 602-608.

An improvement in methods of control of the electrical working conditions and recording of the electrical parameters of arc steelmaking furnaces, employing computers and automatic simulators, permits a substantial improvement in the technical and economic indices for the operation of the furnace and in the quality of the metal melted. (Author)

Ziegler, R. and Gerstner, R.
THE VELOCITY OF SOUND AS A CHARACTERISTIC VALUE FOR THE QUALITY OF CAST IRON. [1960].
Order from BISI £4 15s BISITS 1496

Trans. of International Foundry Congress (No. 24) 1957. [Proceedings] no. 6, p. 133-157.

Ultrasonic radiation is used and the approximate relationship of modulus of elasticity related to amount of graphite, degree of saturation, tensile stress, disintegration of texture and amount of spherolites in spheroidal iron. (J. Iron Steel Inst. abstract)

Structural Metallurgy and Corrosion

Al'tman, M. B. [Slotin, V. I.] and others.
CHANGE IN STRUCTURE AND PROPERTIES OF ALUMINUM AND ITS ALLOYS WHEN TREATED WITH ULTRASONIC VIBRATIONS. Feb 60, 2400 words.
Order from HB $6.25 HB-4776

Trans. of Akad[emiya] Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya]: Metall[urgiya] i Toplivo, 1959, no. 3, p. 88-91.

Experimental study of effect of ultrasonic vibrations on Al and Al-base melts, 22 lbs. in weight, using titanium (+ Cr + Al) coupling rods (wave guides). Materials studied: pure Al; Al-Si-Mg medium hard alloy, and Al-Si-Cu-Mg hard casting alloy. Procedure; method of introducing ultrasonic vibrations into melts. Results of action of vibrations throughout the melts on micro gas bubbles, grain structure, and mechanical properties. Advantage of slow cooling rates. Possibility of inoculating the melts with high-melting components eroded from coupling rod during vibrational treatment. Ti content of melts treated as depending on treating time; effect of Ti on mechanical properties. (HB abstract)

Bogatyreva, E. V. and Balezin, S. A.
SODIUM PHENYLACETATE AS AN INHIBITOR OF CORROSION OF METALS IN NEUTRAL MEDIA. [1959] 8p.
Order from ATS $12.85 ATS-48M37R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zaved-[eniy]. Khim[iya] i Khim[icheskaya] Tekhnol[ogiya] (USSR) 1959, v. 2, no. 1, p. 25-29.

Cupr, V.
ON THE PROPERTIES AND STRUCTURE OF PHOSPHATE COATINGS. Feb 60, 1220 words.
Order from HB $2.90 HB-4783

Trans. of Metalloberfläche (West Germany) 1960, v. 14, no. 1, p. B1-B2.

Study of chemical composition and crystal structure of phosphate coatings, with special reference to the changes they undergo when being dried or subjected to pressure in the various cold-shaping processes..... Aging process- its duration and changes caused by it. Why are phosphate coatings able to stand up under temps. up to 1830°F during forming operations? Reason of need for frequent replacement of baths; pure tertiary zinc phosphate studied by various methods; effect of Fe.. on manner the crystal water is bound. (HB abstract)

Radeker, W.
POSSIBILITY OF CO-EXISTENCE OF STRESS CORROSION AND PITTING CORROSION IN MILD STEELS. [1960].
Order from BISI £2 10s BISITS 1637

Trans. of Arch[iv für das] Eisenhütt[enwesen] (West Germany) 1959 [v. 30] Dec, p. 747-750.

In two cases of corrosion under working conditions it was found that intercrystalline stress corrosion or transcrystalline stress corrosion can occur together with local pitting-type corrosion. The attacking media can naturally act in one way or the other. In the presence of intercrystalline cracks a laboratory test showed that at strong tensile stresses the surface closely resembled that of grain boundary corrosion, whilst local pitting was predominant at low stresses. The appearance of the surface evidently depended on the relative rates at which the two corrosion phenomena developed. Many failures observed in practice, for which no satisfactory explanation has been advanced so far, may well have been due to similar causes. (Author)

Romashkin, Yu. P.
ON THE PROBLEM OF DETERMINATION OF DIFFUSION COEFFICIENT IN THE PLASTIC DEFORMATION OF SOLID, tr. by Lydia Venters. Oct 59, 12p. 5 refs.
Order from LC or SLA mi $2.40, ph $3.30 AEC-tr-3863

Trans. of *Fizika Metallov i Metallovedeniye (USSR) 1959, v. 7, no. 6, p. 825-831.

A solution of the diffusion problem for the linear case in a medium to be deformed is suggested, which aims at the determination of the distribution of the substance along the coordinate in whose direction the diffusion occurs. Equations are derived for the computation of the correction multiplier, $a = D_1/D$, where D_1 is the measured diffusion coefficient and D is that to be determined for the case of any dependence of the deformation on time.

Ruttmann, W. and Schinn, R.
SUMMARY OF THE RESULTS OF JOINT LONG-TIME CREEP TESTS; CONCLUSIONS FOR STEAM-PLANT CONSTRUCTION. [1960].
Order from BISI 4 15s BISITS 1515

Trans. of V[ereinigung der] G[rossel] b[esetzer]. Mitt[eilungen] (West Germany) 1958, Dec, p. 411-420.

Savitsky, Ye. M. and Terekhova, V. F.
STUDY OF MICROSTRUCTURE AND PHYSICO-MECHANICAL PROPERTIES OF RARE EARTH METALS AND THEIR ALLOYS. 27 Jan 60, 10p. 13 refs. JPRS: L-2009-D.
Order from OTS $0.50 60-31031

Trans. of mono. Redkozemel'nyye Elementy (Rare Earth Elements) p. 300-306.

Taganov, K. I.
CERTAIN SPECTROSCOPIC INVESTIGATIONS OF THE POLARITY EFFECT OF THE ELECTRICAL EROSION OF METALS. [1959] 3p. 2 refs.
Order from MDF $2.00 MDF T-143

Trans. of *A[kademiya] N[auk] SSSR. Izv[estiya]. Ser[iya] Fiz[icheskaya] 1959, v. 23, no. 9, p. 1097-1099.

The investigations were by the false electrode method of K. I. Taganov (Akad. Nauk SSSR Izvest. Ser. Fiz. 14: 634, 1950). The polarity effect was estimated qualitatively by means of the quantity I_-/I_+ where I_- is the spectral line intensity in the spectrum of the products transferred from the cathode and I_+ is the intensity of the same line during combustion of the products transported from the anode. The transport was made by copper false electrodes from identical samples. The transport of zinc, iron and molybdenum (metals which differ substantially in their electrical erosion immunity) was investigated in a low-voltage discharge. Experiments showed the difference in the quantitative changes in the transport from the cathode and the anode as the discharge parameters were changed. An increase in the interelectrode spacing (for a 260-v voltage and a discharge circuit capacity of 1000 μf) leads to a decrease in the transport, especially from the anode, in all cases. However, the transport from the cathode remained practically invariant for zinc within the same range of variation of the interelectrode spacing (from 0.3 to 1.5 mm). This indicates the predominance of a torch mechanism and the transport of the substance from the cathode in a given light source. The transport for all the metals increased in the localized discharge, due to a concentrated liberation of discharge energy on a limited section of the metal surface. Processes occurring in the contact zone of two heterogeneous metals play a substantial part in contact-electric spark erosion of metals. By estimates of the magnitude of the I_-/I_+ ratio (Bi 3067.7 Å line), it was established that the transport from the anode is 2.5 times greater than transport from the cathode with copper-bismuth vapor and 6.3 times greater with the vapor of copper and bismuth-tin alloy. This suggests that the principal heat liberation occurs at the anode.

Wiester, H. -J. and others.
PRECIPITATION PROCESSES IN AUSTENITIC CHROME-NICKEL STEELS AND THEIR EFFECTS ON SUSCEPTIBILITY TO INTERGRANULAR CORROSION (WITH DISCUSSION). [1960].
Order from BISI 10 BISITS 1627

Trans. of Arch[iv fur das] Eisenhut[tenwesen] (West Germany) 1959 [v. 30] May, p. 299-309.

The relationship between precipitation processes and tendency to grain breakdown was investigated on two austenitic Cr-Ni steels, one of which was stabilised with Nb and Ta. It was shown that the transition from a resistant grain structure to one with a tendency to breakdown was always connected with the occurrence of Cr carbides of the form $M_{23}C_6$ at the grain boundaries. With higher temperatures and longer annealing times, precipitation within the grain also took place. (J. Iron Steel Inst. abstract)

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

*ATOMNAYA ENERGIYA (USSR) 1959, V. 7, NO. 5, P. 417-504 (Atomic Energy). [1960] 1v. SOV-89-7-5-(1-32)/32.
Order from OTS $0.60, $3.50/6 mo. PB 141 082T-26
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Baranovskiy, V. I., Larionov, O. V. and others.
A NOTE ON NATURAL NEUTRON ACTIVITY OF ARSENIC AND ANTIMONY [K Voprosu o Yestestvennoy Neytronnoy Aktivnosti Mysh'yaka i Sur'my] tr. by A. L. Monks. 28 Oct 59, 3p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3869

Trans. of Leningrad U. Vestnik (USSR) 1959 [v. 14, no. 10] p. 25-26. [Seriya Fiziki i Khimiyi] no. 2.

The assumptions of M. Serwinski and A. Dorabialska (Zeszyty Nauk. Politech. Lodz. Chem. 1: 103 and 117, 1954; and 2: 39, 1955) concerning the possibility of a spontaneous neutron decay of As^{75} and Sb^{123} nuclei are shown to be contradicted by energetic considerations and by special experiments.

Elementary Particles

Azimov, S., Birger, N. and others.
ON THE MASSES OF COSMIC RAY PARTICLES. [1959] 7p. 7 refs. T/L 797; M 1005.
Order from LC or SLA mi$1.80, ph$1.80 60-13708

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1951, v. 78, no. 3, p. 447-450.
Another translation is available from SLA as RT-599 [4]p.

Data were obtained that show that if particles with masses intermediate between the mass of the pi mesons and the proton, and with lifetime $>10^{-8}$ sec exist in cosmic rays at a height 3 to 4 km then their number cannot exceed 10% of the number of protons stopping in the same filters (30 to 105 g/cm^2 Pb).

Blokhinze, G.
FUNDAMENTAL PARTICLES AND THE FIELD. [1959] [13]p. 12 refs. M216.
Order from LC or SLA mi$2.40, ph$3.30 59-19109

Trans. of Uspekhi Fizicheskikh Nauk (USSR) 1950, v. 42, p. 76-92.

Nuclear Engineering and Power

Kutateladze, S. S., Borishanskiy, V. M. and others.
LIQUID-METAL HEAT-TRANSFER AGENTS (Zhidkometallicheskiye Teplonositeli). [1959] [221]p. 81 refs. F-TS-9721/V.
Order from LC or SLA mi$9.90, ph$34.80 60-13100

Trans. of Atomnaya Energiya (USSR) 1958, Suppl. 2.

Data on the study of heat emission from liquid metals, obtained during the past 10 years in the USSR and abroad in connection with problems of nuclear power engineering, are systematized and generalized under the following topic headings: (1) fundamental properties of liquid metals, (2) areas of application of liquid-metal heat carriers, (3) hydraulic resistance in the flow of liquid metals, (4) turbulent heat transfer in liquid metals, (5) heat emission in flow through tubes, (6) heat emission in longitudinal flow around plates, (7) heat emission in transverse flow around cylinders, (8) heat emission in free convection, (9) heat emission in condensation of vapor, (10) heat emission in boiling, (11) heat-exchange apparatus, (12) durability of heat-resistant materials in liquid metals, and (13) measuring instruments. About half of the references are Soviet.

Stefanescu, Alex.
THE RUMANIAN NUCLEAR REACTOR. 3 Oct 58, 6p. JPRS(DC)-L-830.
Order from OTS $0.50 PB 141 280T

Trans. of Energetica (Rumania) 1957, v. 5, no. 11, p. 522-524.

PERSONNEL SUPPLIES AND PERSONAL EQUIPMENT

Migay, K. B.
WORKING CLOTHES FOR THE PROTECTION OF MAN AGAINST ATMOSPHERIC LOW TEMPERATURES, tr. by Claudius F. Mayer. June 59 [8]p. (3 figs. omitted) H 3827.
Order from OTS $0.50 59-21095

Trans. of mono. Spetsodezhda dlya Zashchity Cheloveka ot Niznikh Temperatur Vozdukha, p. 23-28.

Four types of working clothes were investigated. These were (1) moleskin overalls, (2) moleskin overalls lined with cotton net and coarse calico, (3) cotton net underwear and moleskin overalls, and (4) ordinary cotton jacket and trousers. The investigations showed that with respect to the temperature of the skin, and the air temperature beneath the clothing, working apparel no. 1 gave the worse results, no. 2 next, then no. 3 and no. 4, the ordinary cotton apparel gave the best thermal indices.

PHYSICS

REFERATIVNYY ZHURNAL. FIZIKA (USSR) 1959, NO. 11, ABSTRACTS 24161-26368 (Soviet Abstracts. Physics). 8 Mar 60, 124p. JPRS: 2343.
Order from OTS $1.26 60-11366

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia, excluding the USSR.

*ZHURNAL TEKHNICHESKOY FIZIKI (USSR) 1959, V. 29, NO. 8, P. 933-1064 (Journal of Technical Physics). [1960] 1v. SOV-57-29-8-(1-19)/19.
Order from OTS $1.00, $5.50/6 mo. PB 141 053T-16
Foreign $1.25, $7.00/6 mo.

Consists of abstracts in English.

Kukanov, A. B.
ON THE QUESTION OF THE POLARIZATION OF ELECTRON WAVES UPON REFLECTION FROM A FLAT METALLIC SURFACE. [1959] 10p. 9 refs.
Order from MDF $5.00 MDF K-203

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Fizika (USSR) 1959, no. 4, p. 3-12.

The problem of the reflection of electron waves from a plane metallic surface (taking the force of the electrostatic image into account) is solved by the methods of relativistic quantum mechanics. The analysis is limited to states with positive energies. The concept of the vector of the spin in the mean (where the words "in the mean" will be omitted) is used as the basic concept in investigation of the polarization of electron waves. The formulas obtained, which define the direction of the spin vector of the reflected particles as a function of the direction of the spin vector of the incident particles, the angle of incidence and the quantity $\beta_0 = k/K$, wherein both the reflected and the incident particles are considered far from the metal ($|2ik_3z| \gg 1$). Under this condition it has been shown, in particular, that the direction of the spin vector does not change with reflection if it lies in a plane perpendicular to the plane of incidence and the flat metal surface for the incident particles. In the nonrelativistic case any direction of the spin vector is conserved with reflection. It is shown that the states with longitudinal polarization are transformed, under reflection, into states with transverse polarization (the spin vector lies in the incident plane) and conversely, if the condition $\tan\Theta = \sqrt{1-\beta_0^2}$ is satisfied for the angle of incidence. (Author)

Shevele, V. and Moskalyuk, A.
GENERAL MEETING OF THE DEPARTMENT OF PHYSICOMATHEMATICAL SCIENCES OF THE ACADEMY OF SCIENCES UKRAINIAN SSR. 8 Feb 60, 6p. JPRS: 2201-N.
Order from OTS $0.50 60-11245

Trans. of Ukrainskiy Matematicheskiy Zhurnal (USSR) 1959, v. 11, no. 3, p. 336-338.

Tolstoy, D. M. and Pan, Bin-yao.
ON THE DIFFERENCE BETWEEN THE FORCES OF STATIC-DYNAMIC FRICTION (O Skachke Sily Treniya pri Ostanovke). July 58, 6p. 13 refs. C. T. S. no. 460.
Order from LC or SLA mi$1.80, ph$1.80 60-13313

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 114, no. 6, p. 1231-1234.

In all investigated cases of friction with boundary lubrication, and at the same time for surfaces with naturally absorbed lubricants, the velocity characteristic of the friction force differ considerably from linear function. At $100>v>15\mu$/sec, the slope of the characteristic curve is comparatively small, but at further velocity decrease, the slope rises sharply and continuously. Measurements showed that the instantaneous jump of the friction force does not occur, i. e., the starting value of the static friction force coincides with $f_0 = \lim_{v \to 0} f$ in the region of inaccurate force measurements, which is not more than 1 per cent of f_0.

Acoustics

THE GERMAN PERIPHONE. 2 Sep 47, 8p. USL rept. no. 80.
Order from LC or SLA mi$1.80, ph$1.80 59-16649

Trans. of mono. from Atlas Werke, Bremen, 1940.

The Periphone is an ultra acoustic sending or receiving device which can be lowered from the ship's hull and trained in different directions in the horizontal plane. In general it is so built that when not in use it can be retracted by the turning wheel into a nitch built into the floor of the ship so that it no longer sticks out of the hull. The Periphone can be used for (1) discovery and direction finding for invisible ships by listening to the screw sounds from these ships (noise location), (2) discovery and distance measuring by use of the returning echo from a transmitted impulse which is sent out from the equipment in the horizontal direction of the target (horizontal echo ranging); and (3) employment in ultrasonic signal and telephone conversations. (Extracted from the report)

Natta, G., Baccareda, M., and Butta, E.
THE ELASTIC AND INELASTIC BEHAVIOR OF SOME ISOTACTIC POLYMERS. [1959] [8]p. 12 refs.
Order from SLA mi$1.80, ph$1.80 60-14217

Trans. of [Ia] Chimica e l'Industria (Italy) 1959, v. 41 [no. 8] p. 737-740.

The mechanical dynamic properties of linear polymers of α-olefins (polypropylene, polybutylene, polystyrene) containing crystalline fractions of various steric purity have been determined. The transitions determined by the characteristic points of the sound velocity curve and by the internal dissipation in function of the temperature assume positions and magnitudes which depend on the amorphous polymer content and on the steric purity of the crystalline polymer. Relatively high values of the internal dissipation over fairly wide temperature ranges are observed only in products having a high content of noncrystalline components. (Author)

Nomoto, Otohiko.
CLASSIFICATION OF THE OPTICAL METHODS OF VISUALIZATION OF ULTRASONIC WAVES. II. MECHANISMS OF THE IMAGE FORMATION AND THE CHARACTERISTICS OF THE IMAGES. Dec 59, 26p. (refs. omitted).
Order from SLA mi$2.70, ph$4.80 60-14110

Trans. of [Nihon] Onkyo Gakkaishi (Japan) 1958, v. 14, no. 4, p. 291-299.

Mechanism of the image formation by the optical methods of the visualization of ultrasonic waves has been discussed in relation to the characteristics of the images obtained. The images obtained by the various methods, such as (A) the Schlieren method, (B) polarization method, (C) phase-shift method, (D') geometrical optical image, and (D) Fresnel diffraction image, have different characteristics in regard to the plane of focus of the image, and the position of the wave-surfaces, and these are also dependent on the experimental arrangements, sound intensity, and the nature of the waves (progressive or standing waves) in some cases. (English abstract with original paper)

Electricity and Magnetism

Bonch-Bruyevich, V. L.
ON FERROMAGNETICS WITH TWO CURIE POINTS. [1959] 2p. 3 refs.
Order from MDF $2.00 MDF B-152

Trans. of *Fiz[ika] Met[allov i] Metallov[edeniye] (USSR) 1959, v. 8, no. 2, p. 309-310.

Calculations indicate that the predicted effect of the disappearance of ferromagnetism at low temperatures should be sought in solid solutions of nonferromagnetic substances in ferromagnetics. (See also 60-12252 or MDF B-148)

Miryasov, N. Z. and Parsanov, A. P.
MAGNETIC PROPERTIES AND STRUCTURE OF MANGANESE-BORON ALLOYS. [1959] 9p. 9 refs.
Order from MDF $4.50 MDF M-126

Trans. of Moscow U. Vestnik. Seriya M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959, v. 14, no. 1, p. 43-50.

The temperature dependence of the saturation magnetization σ_s, the Curie point Θ, and the structure of binary alloys of the Mn-B system with from 5 to 52.7 at.-% B were investigated. In this range of concentrations, all the alloys with a boron content greater than 33% appeared to be ferromagnetic. The temperature dependence of the saturation magnetization σ_s is described well in the 77° to 300°K range by the formula $\sigma_s = \sigma_0(1 - \alpha T^2)$, where σ_0 has been determined by extrapolation to 0°K. An increase in the boron content above 33% causes a rise in the magnetization σ_0, which achieves its maximum value for 50 at.-% B. As the boron content increases further, σ_0 diminishes. The Curie point of all the alloys appeared to equal 289 ± 4° C. Investigations of the structure of the alloys indicate the existence of four compounds: Mn_4B, Mn_2B, MnB and Mn_3B_4. Results of investigations of the magnetization σ_0, the Curie point Θ and the alloy structure afford a basis for stating that MnB is the ferromagnetism carrier in this system. The spacing between the Mn-Mn atoms in this compound satisfies the positivity condition of the exchange integral if the diameter of the unfilled d-shell is taken to be 1.71 A (according to Slater). The absolute saturation for the MnB compound reaches 140 Ga. cm^3/g, which is almost two and one-half times greater than σ_0 for nickel; the mean atomic magnetic moment is 1.65 Bohr magnetons. (Author)

Poplavskiy, R. P.
POTENTIAL DISTRIBUTION IN A SPHERICAL CONDENSER UNDER CONDITIONS OF SATURATION CURRENT. 1959, 13p. 5 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3937

Trans. of Zhurnal Tekhnicheskoy Fiziki (USSR) 1950, v. 22, no. 2, p. 149-159.

The substitutions used by V. L. Kan (Zhur. Tekh. Fiz. 18: 483, 1948) for his exact solution of the case of limited space charge (the "Langmuir" problem) are used in the present solution for the case of saturation current. To determine the integration constants, the solution is reduced to an equation solved by the Airy functions.

Sobolev, L. V.
VOLT-AMPERE CHARACTERISTICS AND TEMPERATURE DEPENDENCE OF THE CONDUCTIVITY OF NICKEL-ZINC FERRITES. [1959] 5p. 4 refs.
Order from MDF $2.50 MDF S-147

Trans. of Moscow U. Vestnik. [Seriya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959 [v. 14] no. 1, p. 117-120.

Yakovlev, E. N.
FERROMAGNETIC RESONANCE IN A UNIAXIAL FERRITE WITH TWO SUBLATTICES. [1959] 6p. 4 refs.
Order from MDF $3.00 MDF I-121

Trans. of *Fiz[ika] Met[allov] i Metallov[edeniye] (USSR) 1959, v. 8, no. 2, p. 165-169.

Resonance frequencies are calculated for two orientations of the constant magnetic field: along the easy magnetization axis and perpendicular to this axis. (Author)

Molecular Physics and Spectroscopy

Babayeva, A. V.
ABSORPTION SPECTRA OF COMPLEX COMPOUNDS OF NOBLE METALS (CHLOROMETALLATES OF THE PLATINUM GROUP). [1959] 9p. 33 refs. T-3108.
Order from LC or SLA mi$1.80, ph$1.80 60-14164

Trans. of Akademiya Nauk SSSR. Otdel[eniye] Khim[icheskikh]. Izvestiya, 1943, no. 3, p. 171-177.

The light absorption of aqueous solutions of ammonium chloropalladite, ammonium chlororhodiate, ammonium chloroiridite and chloroiridate, potassium chloroplatinite and sodium chloroplatinite was studied. It was shown that three absorption bands exist in the absorption spectrum of these complex compounds in the region of wavelengths from 600 to 220 mμ. Their position is determined by the nature of the central atom, its atomic weight and charge. (Author)

Kirchhoff, G. and Bunsen, R.
CHEMICAL ANALYSIS BY MEANS OF SPECTRAL OBSERVATIONS, SECOND PAPER (Chemische Analyse durch Spectral Beobachtungen, Zweite Abhandlung). [1959] [6]p.
Order from SLA mi$1.80, ph$1.80 59-20874

Trans. of Annalen der Physik (Germany) 1861, v. 113, p. 337-339.

Polyakov, P. M. and Rusanov, A. K.
SPECTROGRAPHIC ANALYSIS OF RARE EARTH ELEMENTS. 18 Feb 60, 13p. 6 refs. JPRS: 2261.
Order from OTS $0.50 60-11307

Trans. of Zavodskaya Laboratoriya (USSR) 1957 [v. 23] no. 5, p. 564-569.

Veselago, V. G.
DETERMINATION OF THE STRUCTURE AND DIPOLE MOMENT OF THE $HDSe$ MOLECULE FROM ITS MICROWAVE SPECTRUM (Opredeleniye Struktury i Dipol'nogo Momenta Molekuly $HDSe$ iz yeye Mikrovol'novogo Spektra) tr. by M. Slade. [1959] [14]p. 19 refs. Trans. no. 4584.
Order from LC or SLA mi$2.40, ph$3.30 60-15371

Trans. of *Optika i Spektroskopiya (USSR) 1959, v. 6, no. 4, p. 450-456.

Measurements were made of the rotational spectrum of the $HDSe$ molecule in the range of centimetre waves. The dipole moment of the molecules is 0.62 debyes. The structure of the molecule was determined with allowance for centrifugal distortion. The effective Se-H and Se-D distances are 1.452 and 1.446 A, respectively. The H-Se-D angle is $90^{\circ}17' \pm 50'$.

Solid State Physics

GROWTH OF CRYSTALS: SELECTED ARTICLES. [1959] [287]p. 191 refs. F-TS-9447/V.
Order from OTS $4.00 60-21207

Trans. of mono. Doklady na Pervom Soveshchanii po Rostu Kristallov (5-10 Marta 1956 G) Moscow, 1957, p. 74-109, 128-137, 178-189, 229-304, 311-319, 326-340, 351-373 and abstract trans. of p. 110-127, 138-158, 205-211 and 320-325.

Contents:
Effect of diffusion of impurities in a melt on their distribution in the crystal during directed crystallization, by A. I. Landau
On the nucleation of crystals in binary alloys, by Ya. V. Grechniy
A contribution to the question of the formation and growth of negative crystals (pores) arising from supersaturated solutions of vacancies in the crystal lattice, by Ya. Ye. Geguzin

Thermal and diffusional processes during the growth of crystals, by G. P. Ivantsov
The influence of modifiers on the process of ingot crystallization, by V. Ye. Neymark and A. I. Dukhin
Study of the processes of crystallization from a melt, by I. N. Fridlyander
Artificial fluorite, by I. V. Stepanov and P. P. Feofilov
The growing of single crystals of lithium fluoride and sodium fluoride with a high transparency in the ultraviolet and infrared regions of the spectrum, by M. A. Vasil'yeva
Methods of growing luminescent crystals for scintillation counters, by L. M. Belyayev, B. V. Vitovskiy, and G. F. Dobrzhanskiy
Apparatus and methods of growing single crystals of semiconductors, by D. A. Petrov and V. S. Zemskov
First experiments in growing large mica crystals, by K. V. Kapralov, Yu. V. Koritskiy and N. N. Sheftal'
Synthetic mica, its properties and application, by I. I. Yamzin and M. S. Leyzerzon
On the growing of single crystals of sorbitol hexaacetate, by I. S. Rez and L. I. Tsinober
The preparation, dielectric and optical properties of single crystals of solid solutions (Ba - Sr)TiO_3, by A. L. Khodakov, M. L. Sholokhovich, Ye. G. Fesenko, and O. P. Kramarov
A new technique of studying the phase transformations under high pressures and temperatures and its application to the study of the polymorphism of phosphorous, by V. P. Butuzov and S. S. Boksha
A new type of autoclave for hydrothermal synthesis, by V. P. Butuzov, G. P. Shakhovskoy and S. P. Smirnov
Technique of synthesis of refractory crystals insoluble in water, by I. N. Anikin
A precision method of determining the saturation temperature of transparent solutions, by A. N. Kovalevskiy
Crystallization of viruses, by V. L. Ryzhkov
Some questions of the kinetics of crystal growth, by B. A. Koptsik
Experience of the work of the student practical course in the technology of artificial crystal growing, by N. L. Pokrovskiy
Crystallization of admixtures on the surface of a crystal investigated by means of an electron and ion projectors, by A. P. Komar and Yu. N. Talanin
Certain characteristics of the growth of crystals of new phase in solid metal solutions observed by means of an electron microscope, by N. N. Buynov
Mechanism of crystallization and the structure of alloys of eutectic composition, by P. S. Vadilo
New data on the reaction of an organic admixtures with inorganic crystals, by Ye. N. Slavnova
On the mechanism of formation of spheroidal graphite in cast iron, by I. Ye. Bolotov, V. I. Syreyshchikova and S. G. Guterman
Installation for obtaining and cleaning high melting monocrystals by the zonal melting method, by V. P. Butuzov and V. V. Dobrovenskiy

Arbuzov, A. Ye., Valitova, F. G. and others.
PARAMAGNETIC RESONANCE OF α, α-DIPHENYL-β-PICRYL-HYDRAZYL OBTAINED FROM VARIOUS SOLVENTS [O Paramagnitnom Rezonanse α, α-Difenil-β pikril-gidrazila, Poluchennogo is Razlichnykh Rastvoriteley] tr. by Monica Nees. 11 Jan 60, 7p. 13 refs. TG 230-T122.
Order from OTS $0.50 60-21064

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 126, no. 4, p. 774-776.

Giterman, M. Sh. and Moskalenko, S. A.
ON THE STRUCTURE OF THE ENERGY BANDS IN IONIC CRYSTALS. [1959] 8p. 14 refs.
Order from MDF $4.00 MDF G-172

Trans. of *Fiz[ika] Met[allov] i Metall[ovedeniye] (USSR) 1959, v. 8, no. 2, p. 170-175.

An investigation has been made of the structure of the electron band and the three hole bands in crystals of the alkali-halide type, taking into account degeneracy of the electronic states at halide sites and the possibility of charge carrier motion in the lattices of both types of ions. An approximate diagonalization of the Hamiltonian of the many electron problem is carried out and group-theoretical methods are applied to investigate the band structure in certain directions in K-space. (Author)

Izyumov, Yu. A.
ON MAGNETIC ANISOTROPY ON THE BASIS OF SPIN-ORBITAL INTERACTION. [1959] 3p. 2 refs.
Order from MDF $2.00 MDF I-120

Trans. of *Fiz[ika] Met[allov i] Metall[ovedeniye] (USSR) 1959, v. 8, no. 2, p. 316-318.

The exchange interaction between electrons is considered according to microscopic theory but the effect of the orbit on the electronic spin is replaced by a certain effective orbital magnetic field which changes from site to site in the crystal.

Kessler, M. F. and Vecerikova, V.
CONTRIBUTION TO THE METHOD OF X-RAY ANALYSIS OF METALLURGICAL COKE. [1959] 14p. (4 figs. omitted) 7 refs.
Order from SLA mi$2.40, ph$3.30 60-10993

Trans. of Brennstoff-Chemie (West Germany) 1959, v. 40, no. 2, p. 52-55.

The reasons for the difficulties in the interpretation of X-ray diffraction patterns of cokes and for the relatively high error in reproducibility (±0.015 Å) of the interlattice plane distance ("d-spacing") $d_{(002)}$ are explained. A new method for X-ray analysis is proposed, based on the use of radiations of longer wave length (Cr-anode) and tungsten powder as reference material. The advantages of the new procedure are discussed. The error in the determination is significantly lower (±0.005 Å) so that one can follow changes in the interlattice plane distances and crystallite sizes with sufficient accuracy. (Author) (Delivered before the National Congress on Utilization of Fuels in Karlsbad, May 1958.)

Lu, Yu-lung and Wang, Ping-nan.
SOME OPINIONS CONCERNING RESEARCH ON SEMICONDUCTOR MATERIALS. 8 Dec 59, 11p.
JPRS: L-1119-N.
Order from OTS $0.50 60-11101

Trans. of K'o Hsüeh T'ung Pao (Chinese People's Republic) 1959, no. 16, p. 508-510.

Men'kov, A. A., Komissarova, L. N., and others.
ON SCANDIUM TELLURIDES AND SELENIDES. [1959] 3p. 11 refs.
Order from MDF $2.00 MDF M-127

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1959, v. 128, no. 1, p. 92-94.

Scandium selenides and tellurides were synthesized from the elements. Metallic scandium was obtained by a calcium-thermal reduction of anhydrous scandium chloride, which was synthesized by chlorination of spectrally-pure scandium oxide with carbon at 1000°. The scandium oxide contained less than 0.005% impurities. The method of thiocyanogen extraction and precipitation of scandium oxalate was used to obtain the oxide. Selenium of the grade for rectifiers (greater than 99.99% pure) was not refined further. The tellurium of a high degree of purity (above 99.99%) was obtained from technical tellurium containing 5% of impurities of selenium, copper, lead and iron. The segregation of the selenium was accomplished by double reprecipitation of the tellurium dioxide, which reduced the selenium content from 0.5% to less than 0.0002%. Tellurium was separated from the heavy metals by sublimation in a high vacuum (10^{-4} to 10^{-5} mm Hg) at 400° after it had been reduced by a sulfur gas. The scandium selenides and tellurides were unfused crystalline powders: the former was a cinnamon-violet and the latter a black color. The chalcogenides obtained were investigated by powder X-ray diffraction methods. The results of the X-ray analyses are tabulated. All 16 lines of the photograph of scandium selenide are indicated well in a cubic face-centered lattice with a = 5.405 ± 0.005 kX. Of the 27 lines of the photograph of scandium telluride, 20 are satisfactorily indicated in a cubic face-centered lattice with a = 5.805 ± 0.005 kX. The densities of scandium selenide and telluride at 22°, obtained by a pycnometric method using bromoform, were 4.51 and 5.26 g/cu cm, respectively. The number of formula units in the elementary cell of both compounds is $z = 1^1/3$. Hence, the crystalline structure of both scandium selenide and telluride is similar to the structural type $\gamma^1 = Al_2O_3$. The structures are defective with respect to the scandium ions. The existence of the No. 6, 8, 11, 23 lines in scandium telluride indicates a partial transition of the $\gamma^1 = Al_2O_3$ structure into a $\gamma = Al_2O_3$ structure with an ordered distribution of the scandium ions.

Natta, Giulio, Peraldo, Mario, and Corradini, Paulo.
MESOMORPHIC MODIFICATION OF ISOTACTIC POLYPROPYLENE. Feb 60, 9p. (2 figs. omitted) 5 refs.
Order from RIS $11.50 RIS rept. 97069

Trans. of Accademia Nazionale dei Lincei. [Classe di] Sci[enze] Fiz[iche] Mat[ematiche] e Nat[urali]. Rendiconti (Italy) 1959, ser. 8, v. 26, no. 1, p. 14-17.
Another translation is available from SLA mi$1.80, ph$1.80 as 59-17937 [1959] 7p.

A solid metastable form (modification II) of isotactic polypropylene can be obtained which differs in some of its physical properties from the crystalline stable modification (modification I) already described (Atti accad. nazl. Lincei Rend. Classe sci. mat. e nat. [8]21: 365, 1956, or translation 59-15931). It can easily be obtained by suddenly chilling in cold water sheets of polymer, a few tenths of a millimeter in thickness, previously heated to a point above their melting point (176°C). Modification II contains stretches of macromolecules of isotactic polypropylene which have a trigonal spiral configuration, associated in parallel bundles. The lateral packing of the polymer chains, which correspond to a mean distance between the chains of about 6.4 Å, is less dense and does not have the regularity of the packing of modification I. Modification II can be converted rapidly and completely into modification I by heating to temperatures near those at which fusion begins (140-150°C). Below 140°C the conversion, although it still takes place rapidly, reaches constantly decreasing limiting values, so much so that below 70°C there is no longer any sensible change in the specimens.

Nudel'man, S. L.
ON THE LATTICE PARAMETERS OF CHRYSOTILE (INDEXING OF POWDER PATTERNS WITH MONOCLINIC SYMMETRY). [1959] 3p. 7 refs.
Order from MDF $2.00 MDF N-108

Trans. of *Kristall[ografiya] (USSR) 1959, v. 4, no. 4, p. 621-623.

If the quadratic form of a crystal of monoclinic symmetry is represented

$$\frac{1}{d^2} = \frac{h^2}{a_1^2} + \frac{k^2}{b^2} + \frac{l^2}{c_1^2} - \frac{2h}{a_1 c_1} \cos\beta, \text{ where}$$

$a_1 = a \sin\beta$, and $c_1 = c \sin\beta$ then it is seen that it differs from the quadratic form for a crystal of rhombic symmetry by the term $-(2hl \cos\beta/a_1 c_1)$. Consequently, the indices h00, 0k0, 00l hk0, 0kl of a monoclinic system can be found on an instrument, exactly as is done in the case of a rhombic system (in the case of the monoclinic system, as opposed to the rhombic system, the hk0 indices are replace by the h0l on the rhombus and the 00l by the 0k0 on the parallelogram). The h0l indices are defined by the vector $2hi \cos\beta$ (see fig. 1), which is the difference in the ordinates of the appropriate lines of the h0l -rhombus and the points of intersection of the OY axis and the line $\frac{1}{d^2}$ determined experimentally from the h0l data and directed toward the h0l line mentioned. The hkl indices are defined by a similar vector, equal to the difference in the ordinates of the appropriate h0l line and the points of intersection of the line $1/d^2$, determined experimentally from hkl data, and the appropriate 0k0 lines. By processing the data of the Gruner

x-ray diagrams the following values were obtained for the chrysotile lattice parameters: a = 9.068; b = 6.715; c = 8.089 Å; β = 62°. On the basis of the hkℓ indices obtained, chrysotile can be referred to the C_{2h}^2 space group. A diagram is given of the locations of the instrument lines for the case of testing the first and second $1/d^2$ lines of chrysotile at the 100 and 001 indices, respectively.

Polotskiy, I. G., Beniyeva, T. Ya., Khodov, Z. L.
EFFECT OF SUPERSONIC VIBRATIONS ON THE CRYSTALLIZATION PROCESS. 16 June 59, 8p. (6 figs. omitted) 17 refs. JPRS: L-814-N.
Order from OTS $0.50 59-13616

Trans. of Akad[emiya] Nauk URSR, [Kiev]. Institut Chernoy Metallurgii. Trudy, 1953, v. 6, p. 91-100.

Transformer oil was used to transmit the ultrasonic vibrations from the quartz vibrator to the orthochlornitrobenzene (chosen as a test object because of it's spontaneous formation of centers of crystallization). A transparent melt of orthochlornitrobenzene was prepared according to a method described by V. I. Danilov and B. M. Teverovskiy (Zhur. Eksptl. i Teoret. Fiz. 10: 1305, 1940), and was purified by means of glass filters. By exposing in an ultrasonic field a tube with melted orthochlornitrobenzene at 20° and varying with a micrometric screw the distance between the bottom of the tube and the quartz, a picture of periodically alternating rings was sometimes observed. These rings vibrated continuously near some middle positions. Microscopic observations of the indicated rings in polarized light made it possible to establish the formation therein of individual small crystals, which were not retained in the zone of the rings but were partly pushed out by the pressure of emission onto the surface of the melt. The formation of centers of crystallization in the melt is probable in the nodes of a standing wave because they are the places of the greatest variations in the density and of the minimum speed of movement of the vibrating medium. Consequently, the ultrasonic waves create additional fluctuations and increase the spontaneous formation of centers of crystallization. Melts of tin, cadmium, and zinc exposed to ultrasonic vibrations during crystallization had much finer grain structures than melts which were not exposed to the vibrations. The decrease in the size of the monocrystals of cadmium was about 10 times, according to X-ray evaluations.

Seeger, A.
THEORY OF LATTICE IMPERFECTIONS. II. MATHEMATICAL THEORY OF DISLOCATIONS. Dec 59, 85p. 93 refs.
Order from SLA mi$4.80, ph$13.80 60-14111

Trans. of Handbuch der Physik (Germany) 1955, v. 7, pt. 1, p. 513-563.

Smol'kov, N. A. and Yeremkina, V. A.
INFLUENCE OF MAGNESIUM ALUMINATE ON THE PROPERTIES OF A MAGNESIUM FERRITE. [1959] 6p. 20 refs.
Order from MDF $3.00 MDF S-149

Trans. of Moscow U. Vestnik. [Seriya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959 [v. 14] no. 2, p. 93-99.

The compounds $MgO \cdot xAl_2O_3 \cdot (1 - x)Fe_2O_3$ were prepared from the oxides MgO, Al_2O_3, and Fe_2O_3. Values of x were 0, 0.25, 0.50, 0.75, and 1.00. A decrease was noted in the following parameters as the concentration of magnesium aluminate increased: The initial and maximum magnetic permeabilities; the coercive force; the residual and maximum inductions; the angle of rotation of the plane of polarization, ϕ; the irreversible phase shift $\Delta\phi^+ - \Delta\phi^-$; the quality, Q; and the value of the resonance field for forward (-) and back (-) waves. The angle ϕ decreased as the temperature rose.

Sobolev, L. V.
TEMPERATURE DEPENDENCE OF THE SPECTRA OF THE COMPLEX DIELECTRIC PERMEABILITY OF POLYCRYSTALLINE NICKEL-ZINC FERRITES. [1959] 5p. 6 refs.
Order from MDF $2.50 MDF S-148

Trans. of Moscow U. Vestnik. [Seriya] M[atematiki] M[ekhaniki] A[stronomii] F[iziki] Kh[imii] (USSR) 1959 [v. 14] no. 2, p. 107-111.

The electrical properties of mixed nickel-zinc ferrites were studied in polycrystalline samples of the following compositions: $NiO \cdot Fe_2O_3$, $NiO_{0.75} \cdot ZnO_{0.25} \cdot Fe_2O_3$, $NiO_{0.5} \cdot ZnO_{0.5} \cdot Fe_2O_3$, $NiO_{0.25} \cdot ZnO_{0.75} \cdot Fe_2O_3$ and in $ZnO \cdot Fe_2O_3$. The samples were prepared by the conventional technology for the production of ceramics and were sintered at 1200°C. They were disc-shaped of about 30 mm diameter and 2 to 5 mm thickness. The electrodes were superimposed by deposition of silver in vacuo. The temperature dependence of the spectra of the dielectric losses $\rho(f)$ and the dielectric permeability $\varepsilon(f)$ were measured by a bridge method in the -196 to +200° C range between the 20 and 10^7 cycle range. The spectra of ρ and ε have noticeable relaxation dispersion in the audio and ultrasonic bands. No limiting constant values of ρ and ε were detected. As the temperature rises the dispersion region narrows considerably and is shifted toward the higher frequencies; the dispersion variation in the quantities ρ and ε is diminished considerably. The maximum of the dispersion losses, characterized by the quantity $\tan\delta$, is also shifted toward higher frequencies as the temperature rises. This maximum is not detected at -78 and -196° C. The quantities ε and ρ have high temperature coefficients; positive for ε and negative for ρ. The general character of the spectra of $\varepsilon(f)$ and $\rho(f)$ is the same for samples of different composition but the spectra differ in details as a function of the sample composition.

Topchiyev, A. V., Geyderikh, M. A. and others.
THE POSSIBILITY OF OBTAINING POLYMER MATERIALS WITH SEMICONDUCTOR PROPERTIES FROM POLYACRYLONITRILE. [1960] [5]p. 5 refs. T-3127.
Order from LC or SLA mi$1.80, ph$1.80 60-14273

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 128, no. 2, p. 312-315.

Another translation is available from LC or SLA mi$1.80, ph$1.80 as 60-10390, 16 Nov 59 [9]p.

A study was made of the semiconducting properties of products of the thermal conversion of polyacrylonitrile, obtained by polymerization of acrylonitrile with organometallic catalysts (LiC_4H_9), at low temperatures (mol wt 10,000), with Li in liquid NH_3, by redox initiation (mol wt 100,000), and also of a polymer obtained by ionic polymerization with subsequent irradiation with a gamma-ray dose of 1.1×10^{22} ev. Samples in both powder and fiber form were heat treated and studied by electronic paramagnetic resonance (EPR) at room temperature: for some fiber samples the relationship between electrical conductivity and temperature was determined. The semiconductors obtained showed electronic conductivity ($\Delta\sigma < 0$). The concentration of current carriers was 10^{18} to 10^{19}, i.e., degeneration was small. The wave half-width of the EPR spectra, characterizing the relaxation time, was 10 to 20 gauss. No hyperfine structure was found in the EPR spectra; one relatively narrow line was observed, in agreement with Fletcher's results (Phys. Rev. 95: 844, 1954). The calculated width of the forbidden zone of polyacrylonitrile obtained by redox initiation and subjected to thermal conversion was 1.7 ev. This semiconductor can operate at a much higher temperature (there is not yet decomposition of the polymer at 300°) than germanium. The width of the forbidden zone indicates that the semiconducting properties are not connected with the carbonization of the polyacrylonitrile sample during thermal treatment.

Tsinober, L. I. and Chentsova, L. G.
SYNTHETIC QUARTZ WITH AMETHYST COLORING. [1959] 4p. 6 refs.
Order from MDF $2.00 MDF T-141

Trans. of *Kristall[ografiya] (USSR) 1959, v. 4, no. 4, p. 633-635.

Polished platelets of synthetic quartz crystals, grown in K_2CO_3 solutions with a large iron content and cut parellel to the $(11\bar{2}0)$ plane, were irradiated with 1.35 to 2.7×10^6 Roentgens. The growth pyramids of the positive <R> rhombohedron were colored amethyst. A smoky-gray color with a violet tint occurred in growth pyramids of the negative <r> rhombohedron, but the brown and the green tinted pyramids of the pinacoids did not change color at all. The absorption curves from pyramids of the positive rhombohedron were very similar to those of natural amethyst. Absorption in the ultraviolet region was relatively high, which is explained by the dissipating effect of the inhomogeneities in synthetic quartz. Curves of the negative rhombohedron are considered to be the superposition of two curves, corresponding to the amethyst and smoky-gray coloring. The iron content in the samples grown in this solution was one or two orders of magnitude larger than that in samples grown in a soda solution. The iron content of the brown and the green samples grown on pinacoids (in the potash solution) was especially high: 0.0080 and 0.025 weight percent, respectively. The 0.0040 and 0.0047 wt-% iron content of the amethyst and mixed (amethyst and smoky gray) samples grown in the potash solution can be a confirmation of the assumption of A. Kats and J. M. Stevels (Philips Research Repts. 11: 115-156, 1956) that the coloring is caused by centers similar to the smoky-gray coloring centers, where the Fe^{3+} ion plays the part of the Al^{3+} ion.

Vekilov, Yu. Kh. and Shaskol'skaya, M. P.
EFFECT OF PLASTIC DEFORMATION ON THE INTERNAL FRICTION AND THE SHEAR MODULUS IN SILVER CHLORIDE. [1959] 3p. 8 refs. T-3113.
Order from LC or SLA mi$1.80, ph$1.80 60-14163

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1959, v. 128, no. 1, p. 71-72.

The temperature dependence of internal friction and the shear modulus was studied by means of a relaxator of the type RKF-MIS. The samples were 20 mm long and had a radius of 0.75 mm. They were prepared in the following manner: The AgCl single crystals were pressed at room temperature on a 50-ton press through a hole 2 mm wide, and the resultant wire was drawn out without intermediary tempering until a diameter of 0.75 mm was attained. Relaxation had probably not taken place between the individual operations. Internal friction was ascertained from the amount of the decrement of extinction: $Q^{-1} = \Delta/\pi = (1/\pi^{n}) \ln(A_1/A_n)$, where n denotes the number of oscillations between the amplitudes A_1 and A_n. The temperature dependence of the shear modulus $G \sim f^2$ was simultaneously recorded (f denotes the frequency of oscillations). At 20°C, $Q^{-1} = 10^{-2}$. The high-temperature branch of internal friction begins at room temperature, and at 75°C, $Q^{-1} = 10^{-1}$. After the measurements the deformed samples were annealed directly for five hours at 240°C and then cooled in an oven. Recrystallization was complete and a fine-grained structure was obtained. At 20°C, Q^{-1} is smaller by two orders than in the case of the deformed samples, and the value of $(5\text{-}8) \times 10^{-4}$ was obtained for different specimens. Internal friction begins to rise at 100°C. It attains a peak at 200°C, which results in a corresponding variation of the modulus. This peak is obviously connected with the relaxation of tensions at the grain boundaries. The modulus in deformed state depends on temperature more strongly than in annealed state. At 20°C, the moduli differ by 13 to 17%, considerably exceeding the error of measurement. The sign of the modulus variation is anomalous because the modulus usually becomes smaller during deformation.

Thermodynamics

Katsnelson, B. D. and Shatil', A. A.
HEAT EXCHANGE IN AIR COOLED CYCLONE COMBUSTION CHAMBERS WITH OVERHEAD GAS TAKE-OFF (Teploobmen v Tsiklonnoy Kamere Goreniya s Vozdushnym Okhlazhdeniyem i Verkhnim Vyvodom Gazov). Aug 58 [7]p. 3 refs. C.T.S. no. 512.
Order from LC or SLA mi$1.80, ph$1.80 60-15584

Trans. of Teploenergetika (USSR) 1957 [v. 4] no. 9, p. 73-75.

Experiments are described which led to the recommendation of the following method for calculating the heat exchange of combustion chambers of steam boilers with fluid clinker removal and air-cooled combustion-chamber walls. The thermal conductivity coefficient ψ of the shielding in relation to the melting temperature, t_c, of the cinder is calculated from $\psi = 0.53 - 0.25(t_c/1000)$. The blackbody radiation factor ϵ_m of the chamber is found from $\epsilon_m = \epsilon_{fl}/[\epsilon_{fl} + (1 - \epsilon_{fl})\psi]$, where ϵ_{fl} is the effective blackbody radiation factor of the flame, determined by the norms for the thermal assessment of boiler aggregates. The temperature coefficient, β, is obtained from $\beta = 0.2 + 0.7(\alpha - 1)$, where α represents the excess air coefficient. The relative thermal emissivity, Δ, is obtained from $\Delta = \psi \epsilon_m \beta$, and the specific thermal absorptivity, q, in Kcal/sq m/ hr, of the dowelled furnace walls is given by $q = \Delta 4.9(T_t/100)^4$, where the theoretical temperature, T_t, is determined by the method recommended by the norms for fuel assessment.

Kimura, M.
EFFECTIVE THERMAL CONDUCTIVITY OF WETTED PACKED BEDS. [1959] 5p.
Order from ATS $7.95 ATS-61M37J

Trans. of Kagaku Kogaku (Japan) 1959, v. 23, no. 8, p. 502-505.

Labuntsov, D. A.
HEAT TRANSFER ON FILM CONDENSATION OF PURE VAPOURS ON VERTICAL SURFACES AND HORIZONTAL PIPES (Teplootdacha pri Plenechnoy Kondensatsii Chistykh Parov na Vertikal'nykh Poverkhnostyakh i Gorizontal'nykh Trubakh). June 58 [14]p. 35 refs. C. T. S. no. 454.
Order from LC or SLA mi$2. 40, ph$3. 30 60-15566

Trans. of Teploenergetika (USSR) 1957, v. 4, no. 7, p. 72-79.

Relationships of improved accuracy are presented for calculating heat transfer on the condensation of vapor films in the zone of laminar and turbulent flow of the condensate. These were obtained from the analysis and development of existing theories concerning the mechanism of the process, and were confirmed by generalizing a large quantity of experimental data. (Author)

Shäfer, Kl.
THERMODYNAMICS AND STATISTICS OF BOUNDARY SURFACES (Thermodynamik und Statistik der Grenzflachen). July 59 [33]p. 20 refs. NRL Trans. no. 750.
Order from OTS $1.00 59-21125

Trans. of Zeitschrift für Elektrochemie (West Germany) 1955, v. 59, no. 4, p. 233-245.

A molecule has a stronger bond inside a liquid than within a surface. As a result of this, the enthalpy of the free enthalpy differs on the inside and at the surface. The phenomena resulting from this, i. e., surface and interfacial tension, capillary pressure and equilibrium state of a boundary surface are explained and derived. The relationship between surface tension and temperature is derived thermodynamically-statistically; one obtains the Eötvös rule. The Gibbs and the Lippmann-Helmholtz equation describe the influence of dissolved substances and of surface charges on the surface tension. Likewise, the change in surface tension due to dissolved electrolytes is calculated and compared with personal measurements. Phenomena in capillary active solutions are only briefly described. (Author) (Presented during the discussion meeting of the German Bunsen Society in Ludwigshafen a. Rh. on 28 October 1954.)

Styrikovich, M. A. and Semenovker, I. Ye.
SOME RELATIONSHIPS IN HEAT TRANSFER TO BOILING MERCURY IN FORCED CONVECTION. [1960] 21p. 3 refs.
Order from LC or SLA mi$2. 70, ph$4. 80 AEC-tr-3868

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1940, v. 10, no. 16, p. 1331-1339.

Wave Propagation

Belousov, S. P. and Yampol'skiy, V. G.
ON THE DETERMINATION OF THE PROPAGATION CONSTANT OF MODES IN A LONG CONDUCTOR, tr. by Morris D. Friedman. Dec 59 [7]p. 7 refs. AFCRC-TN-60-119; B-147.
Order from LC or SLA mi$1. 80, ph$1. 80 60-15454

Trans. of *Radiotekhn[ika] (USSR) 1959, v. 14, no. 7, p. 3-7.
Also available from MDF $2. 50 as MDF B-147 [1959] 5p.

An approximate method is explained of computing the phase velocity and the damping of modes being propagated along a long conductor elevated above the earth. (Author)

Belousov, S. P. and Yampol'skiy, V. G.
ON THE DETERMINATION OF THE PROPAGATION CONSTANT OF MODES IN A LONG CONDUCTOR. [1959] 5p. 7 refs.
Order from MDF $2.50 MDF B-147

Trans. of *Radiotekh[nika] (USSR) 1959, v. 14, no. 7, p. 3-7.

An approximate method is explained of computing the phase velocity and the damping of modes being propagated along a long conductor elevated above the earth. (Author)

Fok, V. A.
THE THEORY OF THE PROPAGATION OF RADIO WAVES IN A HETEROGENEOUS ATMOSPHERE FOR A SLIGHTLY-RAISED SOURCE. [1959] [24]p. 4 refs. M254.
Order from LC or SLA mi$2.70, ph$4.80 59-19135

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1950, v. 14, no. 1, p. 70-94.

Greenberg, G. A. and Fok, V. A.
THE THEORY OF COASTAL REFRACTION OF ELECTROMAGNETIC WAVES. [1959] [23]p. 12 refs. AF-4.
Order from LC or SLA mi$2.70, ph$4.80 59-16702

Trans. of unidentified [Russian] mono.

The equation $(\partial E_z/\partial z)_{z=0} = 2\pi a(E_z)_{z=0}$ is derived to express the approximate boundary condition over the entire surface of the land for the electric field component (E_z) which is normal to the boundary surface ($z = 0$) between the sea and the land. Here $a = i\mu_2\omega(\epsilon_1\omega) + i4\pi\sigma_1)/2\pi k_2c^2 = i\mu_2k_1^2/2\pi\mu_1k_2$. The assumptions are made that the sea is an ideal conductor, the surface of the land is plane and horizontal, and the portion of land that projects from the water is insignificant in comparison to a wavelength. The integral equation

$$(E_z)_0 = 2(E_z^0)_0 + a\int_{(f)} (E_z)_0 \frac{e^{ikr}}{r} df$$

is obtained, which is based upon the approximate exponential nature of the field attenuation when the depth of penetration into a sufficiently good conductor increases. For the case of an unlimited straight coast line with the external field created by an arbitrary system of radiators the problem reduces to the solution of

$$F(x) = 2F^0(x) + i\pi a\int_0^\infty F(\xi)H_0^{(1)}(m|x-\xi|)d\xi,$$

where $H_0^{(1)}$ is a zero order Hankel function of the first kind and $m = \sqrt{k^2 - s^2}$. This is shown to be a particular case of an equation investigated by V. A. Fok (Doklady Akad. Nauk SSSR 36: 147, 1942; and Mat. Sbornik 14(56): 3, 1944). (See also 59-16703)

Smorgonskiy, V. Ya.
COMPUTATION OF THE INPUT RESISTANCE OF A DIPOLE DISPOSED ALONG AN ELLIPTICAL WAVEGUIDE. [1959] 6p. 3 refs.
Order from MDF $3.00 MDF S-144

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedeniy]. Radiotekhnika (USSR) 1959, v. 2, no. 4, p. 480-485.

Formulas and graphs are presented that permit the input resistance of a dipole disposed along an elliptical waveguide to be computed easily and also permit the calculation of the change in the input resistance as a circular waveguide is deformed into an elliptical guide, which is of substantial importance in the determination of tolerances in the eccentricity.

Synakh, V. S.
RADIATION OF GRAVITATIONAL WAVES BY ELECTROMAGNETIC FIELDS, tr. by Morris D. Friedman. Jan 60 [5]p. 1 ref. AFCRC-TN-60-131; S-143.
Order from LC or SLA mi$1.80, ph$1.80 60-15457

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Fizika (USSR) 1959, no. 4, p. 119-122.

The radiation of gravitational waves by a spherical electromagnetic wave is analyzed. It is shown that this must lead to the attenuation of the electromagnetic wave with distance.

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

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26 Feb 60, PB 131 891T-41
18 Mar 60, PB 131 891T-42

Consists of unevaluated information extracted from publications of USSR, Eastern Europe, and China.

SOVIET SCIENTIFIC AND ENGINEERING PERSONNEL. 2 Dec 59, 55p. JPRS: L-1106-N.
Order from OTS $1.50 60-11081

Consists of complete translation of selected biographic-type articles from Russian periodicals.

Braynes, S. N. and Napalkov, A. V.
CERTAIN PROBLEMS IN THE THEORY OF SELF-ORGANIZING SYSTEMS. 25 Jan 60, 13p. JPRS: 2177-N.
Order from OTS $0.50 60-11226

Trans. of Voprosy Filosofii (USSR) 1959, no. 6, p. 148-154.

A successful solution of the problem of self-organizing systems is intimately connected with our approach to certain basic problems in materialistic philosophy. On the basis of the materialistic theory, which acknowledges the objective existence of complex systems of laws in the external world, it is possible correctly and clearly to visualize all the processes which are accomplished in the course of the elaboration of a new work program of self-organizing cybernetic systems. .... In our view, the task of investigation consists in the creation of models of two systems which differ in

their natures, one of which (the model of the controlled system) must possess a system of fixed laws, and the other of which (the control system) must possess an algorithm ensuring the demonstration of these laws and the evolution on this basis of new work programs. (Extracted from the translation)

Chernenko, A. K. and Moronov, K. Ye.
IN THE JOINT SCIENTIFIC COUNCILS OF THE SIBERIAN DEPARTMENT OF THE ACADEMY OF SCIENCES USSR. 26 Feb 60, 3p. JPRS: 2296.
Order from OTS $0.50 60-11332

Trans. of Akademiya Nauk SSSR. Sibirskoye Otdeleniye. Izvestiya, 1959, no. 7, p. 126-127.

Lungonelli, Menotti.
METHOD AND APPARATUS APPLICABLE TO ANY OPTICAL MICROSCOPE FOR OBTAINING PHOTOMICROGRAPHS ON A PLATE OF ANY SIZE, AND FOR PROJECTING OR TAKING CINEMATOGRAPHICALLY MICROSCOPIC SPECIMENS, tr. by F. H. B. 12 Feb 60, 5p. (9 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15552

Trans. of Italian patent 534, 249, cl. XXIII, appl. 6 May 55, granted 13 Oct 55, printed Sep 58.

The device consists of a Köhler illuminating apparatus and of an accessory to be applied on the photographic eyepiece of the microscope and containing a small optically processed plate with a specular surface, which can assume two positions: one of 45° for photomicrography and microprojection, and one of 180° (folded position) for normal use of the microscope with the eye on the eyepiece.

Timofeyev-Resovskiy, N. V. and Rompe, R. R.
ON STATISTICITY AND THE PRINCIPLE OF AMPLIFIER IN BIOLOGY. 16 Feb 60, 25p. 52 refs. JPRS: 2241.
Order from OTS $0.75 60-11289

Trans. of *Problemy Kibernetiki (USSR) 1959, no. 2, p. 213-228.

Read on 16 November 1956 at the Seminar on Cybernetics under the Mechanics and Mathematics Faculty of the Moscow State University.

Votruba, Ladislav.
PLANS FOR SCIENTIFIC-RESEARCH WORK AND THEIR IMPLEMENTATION IN HIGHER SCHOOLS (Plany Vedeckovyzkumne Prace na Vysokych Skolach a Jejich Plneni). 19 Jan 59, 5p. JPRS: L-1401-D.
Order from OTS $0.50 59-11425

Trans. of Vysoka Skola (Czechoslovakia) 1958, v. 6, no. 5, p. 138-141.

Yablonskiy, S. V.
BASIC CONCEPTS OF CYBERNETICS. 11 Mar 60, 42p. 5 refs. JPRS: 2314.
Order from OTS $1.25 60-11347

Trans. of *Problemy Kibernetiki (USSR) 1959, no. 2, p. 7-38.

Communication Theory

Petrovskiy, A. M.
METHOD OF COMPUTING THE INTERFERENCE-PREVENTION OF A PULSE COMMUNICATION SYSTEM TO FLUCTUATING INTERFERENCE ON THE BASIS OF ANALYZING THE SPECTRAL DENSITIES OF THE DISTORTED SIGNAL. [1959] 14p. 7 refs.
Order from MDF $7.00 MDF P-143

Trans. of Avto[matika] i Tele[mekhanika] (USSR) 1954, v. 14, no. 2, p. 124-134.

The method is based on a statistical analysis of signal distortion. The following kinds of pulse modulation are considered: Pulse-amplitude modulation, pulse-time modulation, pulse-code modulation (PCM), modulation by duration, and delta modulation (DM). The interference prevention of DM is compared with that of PCM.

Pushnoy, B. M.
GEOMETRIC CONSTRUCTION OF OPTIMUM CODES. [1959] 13p. 5 refs.
Order from MDF $6.50 MDF P-142

Trans. of *Elektrosvyaz' (USSR) 1959, v. 13, no. 10, p. 3-12.

The possibilities are considered of constructing codes with increased interference-immunity. It is shown that the points of optimum code signals coincide with the vertices of certain regular multidimensional polyhedra. Also, a number of multidimensional irregular polyhedra whose vertices can be points of optimum code signals is investigated. (Author)

SOCIAL SCIENCES

Arnet, Hans and Baechthold, Heini.
THE USE OF NIGHT VISION DEVICES IN THE POLICE SERVICE. 27 Mar 59, 11p. (11 illus. omitted). JPRS: L-727-N.
Order from OTS $0.50 59-13524

Trans. of Kriminalistik (West Germany) 1956 [v. 10] Dec, p. 434-440.

BOOK REVIEWS

The following book reviews can be ordered by number from LC or SLA. Each review includes, in addition to the material shown, a detailed statement of the coverage of the book and a detailed table of contents. The length of each review is indicated at the end of the entry.

BR-SOV/2871
Alekseyeva, S. M., A. I. Rivkin, and M. S. Khitruk
MODERNIZATSIYA BESTSENTROVYKH KRUGLOSHLIFOVAL'NYKH STANKOV (Modernization of Cylindrical Centerless Grinding Machines) Moscow, Mashgiz, 1957. 71 p. 6,700 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2990
KRATKIY SVETOTEKHNICHESKIY SPRAVOCHNIK (Short Handbook on Lighting Engineering) Moscow, Gosenergoizdat, 1959. 79 p. 3,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2992
RSFSR. Moskovskiy gorodskoy ekonomicheskiy rayon. Sovet narodnogo khozyaystva
OKRASKA V ELEKTRICHESKOM POLE VYSOKOGO NAPRYAZHENIYA (Painting In A High Voltage Electric Field) Moscow, Tsentr. byuro tekhn. inform., 1958. 63 p. (Series: Dostizheniya nauki i tekhniki) Errata slip inserted. 4,500 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2993
Hajdovsky, Vladimir
ISSLEDOVANIYE MATERIALOV RENTGENOVYMI I -LUCHAMI (Using X-rays and Gamma-Rays in Material Testing) Moscow, Metallurgizdat, 1959. 314 p. Errata slip inserted. 5,000 copies printed. Translation of "Zkouseni materialu a vyrobku rentgenovymi paprsky a paprsky gama." Prague, 1956. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2995
Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk. Komissiya po khromatografii
IONNYY OBMEN I YEGO PRIMENENIYE (Ion Exchange and Its Application) Moscow, Izd-vo AN SSSR, 1959. 318 p. Errata slip inserted. 4,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2994
Kivilis, Solomon Shlemovich
TEKHNIKA IZMERENIYA PLOTNOSTI ZHIDKOSTEY I TVERDYKH TEL (Techniques of Measuring Densities of Liquids and Solids) Moscow, Standartgiz, 1959. 191 p. Errata slip inserted. 3,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2996
Akademiya nauk SSSR. Institut goryuchikh iskopayemykh
GENEZIS TVERDYKH GORYUCHIKH ISKOPAYEMYKH (Genesis of Solid Fuels) Moscow, AN SSSR, 1959. 358 p. Errata slip inserted. 2,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2997
Uvarov, Georgiy Vasil'yevich
RAZVITIYE KHIMICHESKOY PROMYSHLENNOSTI V 1959-1965 GODAKH (Development of the Chemical Industry Between 1959 and 1965) Moscow, Izd-vo "Znaniye," 1959. 15 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IV, 1959, no. 26) 47,500 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2998
Vasil'yev, Mikhail Vasil'yevich
PUTESHESTVIYA V KOSMOS (Space Travel) 2d ed., rev. and enl. [Moscow] Izd-vo "Sovetskaya Rossiya," 1958. 245 p. 30,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-POL/2999
Thor, Janusz
PODROZE POZA ZIEMIE; OPOWIESCI Z DAWNYCH CZASOW, OSIAGNIECIA DNIA DZISIEJSZEGO, PLANY NA PRZYSLOSC (Space Travel; Stories from the Past, Achievements of Today, and Plans for the Future) Warsaw, Panstwowe wydawnictwa techniczne, 1959. 151 p. 5,253 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-YUG/3002
Vidmar, Milan.
PROBLEMI RAZPETINE V ELEKTRICNEM DALJNOVODU (Span Problems in Overhead Transmission Lines) Ljubljana, Slovenska akademija znanosti in umetnosti v Ljubljani, 1959. 68 p. (Series: Slovenska akademija znanosti in umetnosti. Razred za matematicne, fizikalne in teknicne vede. Dela [No.] 4) (Series: Slovenska akademija znanosti in umetnosti. Institut za elektrisko gospodarstvo. [Dela, No.] 2) 1,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3004
Zhukov, Aleksandr Konstantinovich
ELEKTROOBORUDOVANIYE VTORICHNOY KOMMUTATSII I YEYE MONTAZH (Control System Equipment and Its Installation) 2nd ed., rev. Moscow, Gosenergoizdat, 1958. 255 p. 25,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3005
Gorfman, A. I. and A. R. Dembo
AVTOMATIKA V STROITEL'STVE (Automation in

Construction Works) Leningrad, Gosstroyizdat, 1959. 183 p. 9,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3006
Malinin, Roman Mikhaylovich
KONDENSATORY I SOPROTIVLENIYA (Capacitors and Resistors) Moscow, Voyen. izd-vo M-va obor. SSSR, 1959. 174 p. No. of copies printed not given. 5 p. Microfilm $1.80 Photocopy $1.80.

BR-SOV/3007
Strashkevich, Aleksey Mikhaylovich
ELEKTRONNAYA OPTIKA ELEKTROSTATICHESKIKH POLEY NE OBLADAYUSHCHIKH OSEVOY SIMMETRIYEY (Electron Optics of Electrostatic Fields Without Axial Symmetry) Moscow, Fizmatgiz, 1959. 251 p. 6,000 copies printed. Ed.: V. Ya. Dubnova; Tech. Ed.: S. S. Gavrilov. 4 p. Microfilm $1.80 ph. $1.80

BR-SOV/3008
Aseyev, Boris Pavlovich
FAZOVYYE SOOTNOSHENIYA V RADIOTEKHNIKE (Phase Relationships in Radio Engineering) 3rd ed., enl. Moscow, Svyaz'izdat, 1959. 304 p. 11,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3011
Vsesoyuznoye astronomo-geodezicheskoye obshchestvo
BYULLETEN', NO. 25/32/ (Bulletin of the All-Union Astronomical and Geodetic Society, Nr 25/32/) Moscow, Izd-vo AN SSSR, 1959. 50 p. 1,500 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3012
Akademiya nauk SSSR. Morskoy gidrofizicheskiy institut
FIZIKA MORYA (Physics of the Sea) Moscow, Izd-vo AN SSSR, 1959. 95 p. (Series: Its: Trudy, Vol 17) Errata slip inserted. 1,300 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3014
Butalov, Vladimir Aleksandrovich
TEKHNOLOGIYA METALLOV (Production and Processing of Metals) 2nd ed., rev. and enl. Moscow, Metallurgizdat, 1959. 502 p. Errata slip inserted. 31,500 copies printed. 18 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3016
Akademiya nauk SSSR. Laboratoriya sistem peredachi informatsii
PROBLEMY PEREDACHI INFORMATSII. VYP. 1: POSTROYENIYE SKHEM I SETEY SVYAZI. (Problems of Information Transmission. Nr. 1: Design of Communications Circuits and Networks) Moscow, Izd-vo AN SSSR, 1959. 163 p. Errata slip inserted. 2,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3017
Momot, Yevgeniy Grigor'yevich
GENERATOR S SHUNTIRUYUSHCHIM DIODOM I YEGO PRIMENENIYE (Oscillator With a By-Pass Diode and Its Application) Moscow, Gosenergoizdat, 1959. 155 p. 15,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3018
Sirotinskiy, Leonid Ivanovich
TEKHNIKA VYSOKIKH NAPRYAZHENIY. CH. 3, VYP. 1: VOLNOVYYE PROTSESSY I VNUTRENNIYE PERENAPRYAZHENIYA V ELEKTRICHESKIKH SISTEMAKH (High-Voltage Engineering. Pt. 3, no. 1: Wave Processes and Internal Overvoltages in Electrical Systems) Moscow, Gosenergoizdat, 1959. 365 p. 15,000 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3019
Mashinoeksport, Vsesoyuznoye ob'yedineniye
KATALOG SPRAVOCHNIK, TOM. 1: ELEKTRICHESKIYE MASHINY (Catalog and Reference Manual, Vol. 1: Electrical Machines) Moscow, [n. d.] 304 p. Number of copies printed not given. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3020
Tyutin, Ivan Andreyevich
ELEKTROMAGNITNYYE NASOSY DLYA ZHIDKIKH METALLOV (Electromagnetic Pumps for Liquid Metals) Riga, Izd-vo AN Latviyskoy SSR, 1959. 113 p. Errata slip inserted. 1,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3022
Sergeyev, Sergey Ivanovich
DEMPFIROVANIYE MEKHANICHESKIKH KOLEBANIY (Damping of Mechanical Vibrations) Moscow, Fizmatgiz, 1959. 408 p. Errata slip inserted. 5,000 copies printed. 5p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3023
Ippelitov, Georgiy Mikhaylovich
ABRAZIVNYYE INSTRUMENTY I IKH EKSPLUATATSIYA (Abrasive Tools and Their Use) Moscow, Mashgiz, 1959. 254 p. 7,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3024
Povolotskiy, David Yakovlevich, and Aleksandr Nikolayevich Morozov
VODOROD I FLOKENY V STALI (Hydrogen and Flakes in Steel) Moscow, Metallurgizdat, 1959. 182 p. Errata slip inserted. 2,800 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3025
USSR. Komitet standartov, mer i izmeritel'nykh priborov
PRIBORY TEPLOENERGETICHESKOGO KONTROLYA (Instruments Used in Heat-power Control) Official ed. Moscow, 1959. 478 p. (Series: USSR. Gosudarstvennyye standarty) Errata slip inserted. 5,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3026
Grinilev, Lev Solomonovich
O KIBERNETIKE (On Cybernetics) Moscow, Izd-vo "Znaniye," 1959. 30 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politcheskikh i nauchnykh znaniy. Seriya IV, 1959, No. 28) 55,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3030
Leningrad. Tsentral'naya aerologicheskaya observatoriya
NEKOTORYYE VOPROSY FIZIKI OBLAKOV (Some Problems in Cloud Physics) Moscow, Gidrometeoizdat (otd.) 1959. 94 p. (Series: Its: Trudy, vyp. 30) 650 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3032
Polonskiy, Vladimir Ivanovich
ATOMNYYE KORABLI (Atomic-Powered Ships) Leningrad, 1959. 41 p. 9,500 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3033
Kizel'shteyn, V. Ya.
PRIMENENIYE KHIMII V OBRABOTKE METALLOV (Application of Chemistry in Metal Finishing) [Leningrad] Lenizdat, 1959. 174 p. 3,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3036
Kovalenko, Anatoliy Dmitriyevich
KRUGLYYE PLASTINY PEREMENNOY TOLSHCHINY (Circular Plates of Variable Thickness) Moscow, Fizmatgiz, 1959. 294 p. Errata slip inserted. 4,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3038
Adamov, Pavel Nikolayevich
SLUZHBA POGODY (Weather Service) 2d ed. Leningrad, Gidrometeoizdat, 1959. 43 p. 10,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3039
Chernyak, Konstantin Isaakovich
EPOKSIDNYYE KOMPAUNDY I IKH PRIMENENIYE (Epoxy Compounds and Their Application) Leningrad, Sudpromgiz, 1959. 132 p. Errata slip inserted. 3,800 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3040
Blokhin, Mikhail Arnol'dovich
METODY RENTGENO-SPEKTRAL'NYKH ISSLEDOVANIY (Methods of X-ray Spectrum Analysis) Moscow, Fizmatgiz, 1959. 386 p. 5,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3044
Kantorovich, Leonid Vital'yevich, and Gleb Pavlovich Akilov
FUNKTSIONAL'NYY ANALIZ V NORMIROVANNYKH PROSTRANSTVAKH (Functional Analysis in Normed Spaces) Moscow, Fizmatgiz, 1959. 684 p. 6,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3050
Gol'danskiy, Vitaliy Iosifovich, Andrey Varfolomeyevich Kutsenko and Mikhail Isaakovich Podgoretskiy.
STATISTIKA OTSCHETOV PRI REGISTRATSII YADERNYKH CHASTITS (Statistics of Readings in Recording of Nuclear Particles) Moscow, Fizmatgiz, 1959. 411 p. 6,000 copies printed. 11 p. Microfilm $ 2.40 Photocopy $3.30

BR-SOV/3051
Bonch-Osmolovskaya, Natal'ya Aleksandrovna
ATOMNYY FOTOEFFEKT V OBLASTI -LUCHEY (Atomic Photoelectric Effect in the Gamma-ray Range) Moscow, AN SSSR, 1959. 48 p. Errata slip inserted. 950 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3052
Akademiya nauk Armyanskoy SSR. Institut tonkoy organicheskey khimii.
SINTEZY GETEROTSIKLICHESKIKH SOYEDINENIY, VYP. 3 (Synthesis of Heterocyclic Compounds, Nr. 3) Yerevan, Izd-vo AN Armyanskoy SSR, 1958. 89 p. 2,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3054
Deryagin, Boris Vladimirovich, and Sergey Maksimovich Levi
FIZIKO-KHIMIYA NANESENIYA TONKIKH SLOYEV NA DVIZHUSHCHUYUSYA PODLOZHKU (Physics and Chemistry of the Application of Thin Coatings to Moving Film Bases) Moscow, Izd-vo AN SSSR, 1959. 207 p. Errata slip inserted. 4,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3055
Kashpur, Yakov Nikolayevich and Anatoliy Fedorovich Zakhar'in
GEOTERMICHESKIYE USLOVIYA YUGO-ZAPADNOY CHASTI DONBASSA (Geothermal Conditions of the Southwestern Part of the Donets Basin) Moscow, Ugletekhizdat, 1958. 114 p. 1,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3056
Al'tshuler, Anatoliy Yevgen'yevich, Petr Ivanovich Korotkov, Vasiliy Leonidovich Kazanskiy, and Nikolay Mikhaylovich Gerasimenko
PROIZVODSTVO SMAZOCHNYKH MASEL IZ SERNISTYKH NEFTEY (Producing Lubricating Oils From Sulfurous Crudes) Moscow, Gostoptekhizdat, 1959. 189 p. Errata slip inserted. 4,200 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3057
Sevcov, Ivan
OCHRANA PROTI BLESKOM (Protection Against Lightning) Bratislava, Slovenske Vydatelstvo Technickej Literatury, 1959. 181 p. 1,700 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3058
Sobolevskiy, Anatoliy Georgiyevich
IMPUL'SNAYA TEKHNIKA (Pulse Techniques) Moscow, Gosenergoizdat, 1958. 167 p. (Series: Massovaya radiobiblioteka, vyp. 308) 65,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3059
But, A. I.
DISKOVYY ELEKTRICHESKIY RAZDELITEL'; PYLEULAVLIVANIYE, FRAKTSIONIROVANIYE, SEPARATSIYA I TERMOOBRABOTKA RAZLICHNYKH MATERIALOV V ELEKTRICHESKOM POLE. (Electric Disk Separator; Dust Collecting, Fractionation, Separation and Heat Treatment of Various Materials in an Electric Field) Moscow, Gosstroyizdat, 1959, 86 p. 3,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3060
Roginskiy, Vadim Nikolayevich
ELEMENTY STRUKTURNOGO SINTEZA RELEYNYKH SKHEM UPRAVLENIYA (Elements of Structural Synthesis of Relay Control Circuits) Moscow, AN SSSR, 1959. 167 p. Errata slip inserted. 4,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3067
Moscow, Tsentral'nyy institut prognozov
VOPROSY GIDROLOGICHESKIKH PROGNOZOV (Problems in Hydrological Forecasting) Moscow, Gidrometeoizdat (otd.) 1959. 73 p. (Series: Its: Trudy, vyp. 90) 860 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-CZECH/3069
Ruzicka, Jaroslav, and Zdenek Sigut
JADERNA ENERGIE V TECHNICE (Industrial Use of Nuclear Power) [Prague] Statni nakladatelstvi technicke lit-ry, 1959. 95 p. 4,200 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3071
Akademiya nauk SSSR. Energeticheskiy institut
ELEKTROENERGETIKA, VYP. 1 (Electric Power Engineering, Nr. 1) Moscow, Izd-vo AN SSSR, 1959. 159 p. Errata slip inserted. 2,800 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3072
Bondar', Mikhail Pavlovich, Aleksandr Yakovlevich Lopata, and Mikhail L'vovich Orlikov
TOKARNYYE AVTOMATY I POLUAVTOMATY (Automatic and Semiautomatic Lathes) Kiyev, Mashgiz, 1959. 450 p. 30,000 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3073
Lyubimov, Valentin Mikhaylovich, Viktor Ivanovich Ostrogorskiy, and Mikhail Semenovich Shlionskiy
SKREBKOVYYE RAZGRUZOCHNYYE MASHINY (Scraper-type Unloading Machines) Moscow, Metallurgizdat, 1959. 44 p. 2,700 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3074
Izmaylov, Nikolay Arkad'yevich,
ELEKTROKHIMIYA RASTVOROV (Electrochemistry of Solutions) Kharkov, Izd-vo Khar'kovskogo univ., 1959. 957 p. Errata slip inserted. 10,000 copies printed. 13 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3076
Bakhvalov, Grigoriy Tikhonovich, and Anna Vasil'yevna Turkovskaya
KORROZIYA I ZASHCHITA METALLOV (Corrosion and Protection of Metals) 2d ed., rev. and enl. Moscow, Metallurgizdat, 1959. 310 p. Errata slip inserted. 11,200 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3080
Gomelauri, Nikolay Georgiyevich, Nikolay Vasil'yevich Kashakashvili, Solomon Avtandilovich Sharadzenidze, Viktor Viktorovich Sereda, and Georgiy Lukich Gogava
ZAKAVKAZSKIY METALLURGICHESKIY ZADOV IMENI I. V. STALINA (Zakavkazskiy Metallurgical Plant imeni I. V. Stalin) [Moscow] Metallurgizdat, 1959. 147 p. 3,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3082
Nasledov, Dmitriy Nikolayevich
POLUPROVODNIKI (Semiconductors) Moscow, Izd-vo "Znaniye," 1959. 44 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IV, 1959, no. 30/31) 51,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3083
Maksimovich, Georgiy Grigor'yevich
AVTOMATYCHNYY KONTROL' ROZMIRIV RIZ'BY (Automatic Thread Gaging) Kyyiv, Vyd-vo AN URSR, 1959, 113 p. 1,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3085
Demyantsevich, Vladimir Petrovich, and Semen Isaakovich Dumov
TEKHNOLOGIYA ELEKTRICHESKOY DUGOVOY SVARKI (Technique of Electric-arc Welding) Moscow, Mashgiz, 1959. 360 p. 20,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3086
Galaktionova Nadezhda Andreyevna
VODOROD V METALLAKH (Hydrogen in Metals) Moscow, Metallurgizdat, 1959. 255 p. Errata slip inserted. 3,200 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3088
Rabotin, Aleksandr Nikolayevich
TOCHNOST' OBRABOTKI DETALEY MASHIN (Accuracy in Machining Machine Elements) 3rd ed. Moscow, Mashgiz, 1959. 41 p. (Series: Nauchno-populyarnaya biblioteka rabochego stanochnika, vyp. 21) 8,500 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3090
Moscow. Aviatsionnyy tekhnologicheskiy institut
ISSLEDOVANIYE PROTSESSOV VYSOKOPROIZVODITEL'NOY OBRABOTKI METALLOV REZANIYEM (Analysis of High-productivity Metal-cutting Processes) Moscow, Oborongiz, 1959. 130 p. (Series: Its: Trudy, vyp. 38) 3,600 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3093
Bronshteyn, Vladimir Markovich
SNIZHENIYE BRAKA V STALEPLAVIL'NOM PROIZVODSTVE (Reduction of the Number of Rejects in the Steelmaking Indsutry) Moscow, Metallurgizdat, 1959. 140 p. 3,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3094
Yelistratov, Petr Savel'yevich
SVAROCHNYYE SVOYSTVA CHUGUNA (Welding Properties of Cast Iron) Moscow, Mashgiz, 1959. 145 p. Errata slip inserted. 5,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3095
Gliner, Boris Moiseyevich
OPREDELENIYE MEKHANICHESKIKH I TEKHNOLOGICHESKIKH SVOYSTV METALLOV; KRATKOYE SPRAVOCHNOYE POSOBIYE (Determination of Mechanical and Manufacturing Properties of Metals; a Brief Manual) 2d ed., rev. and enl., Moscow, Mashgiz, 1959. 158 p. Errata slip inserted. 8,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3097
Ris, Vladimir Fedorovich
RASCHET DISKOV TURBOMASHIN (Design of Turbomachine Disks) 2d ed., rev., Moscow, Mashgiz, 1959. 54 p. Errata slip inserted. Supplement of 18 charts. 3,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3098
Kaufman, Lazar' Moyseyevich
BESKOPIRNYYE SISTEMY AVTOMATIZATSII STANKOV (Program-control Systems for the Automation of Machine Tools) Moscow, Mashgiz, 1959. 285 p. Errata slip inserted. 6,000 copies printed. 4 Microfilm $1.80 Photocopy $1.80

BR-SOV/3099
Tbilisi. Nauchno-issledovatel'skiy gidrometeorologicheskiy institut
TRUDY, VYP. 4 (Transactions of the Tbilisi Hydro-Meteorological Scientific Research Institute, No. 4) Leningrad, Gidrometeoizdat, 1959. 178 p. 1,500 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3100
Akademiya nauk SSSR. Ural'skiy filial. Institut metallurgii
TRUDY, VYP. 4 (Transactions of the Institute of Metallurgy, Ural Branch, Academy of Sciences, USSR; No. 4) Sverdlovsk, 1958. 157 p. Errata slip inserted. 1,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3102
Buyanov, Aleksandr Fedorovich
UPRAVLYAYEMYY ELEKTRON (Guided Electron) Moscow, Profizdat, 1959. 138 p. 10,500 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3108
Baldin, Aleksandr Mikhaylovich, Vitaliy Iosifovich Gol'danskiy, and Iosif Leonidovich Rozental'
KINEMATIKA YADERNYKH REAKTSIY (Kinematics of Nuclear Reactions) Moscow, Fizmatgiz, 1959. 296 p. 8,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3110
Moshnin, Yevgeniy Nikolayevich
GIBKA, OBTYAZHKA I PRAVKA NA PRESSAKH; TEKHNOLOGIYA I OBORUDOVANIYE (Bending, Stretching, and Straightening in Presses; Processing and Equipment) Moscow, Mashgiz, 1959. 359 p. Errata slip inserted. 6,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3111
Nadenenko, Sergey Ivanovich
ANTENNY (Antennas) Moscow, Svyaz'izdat, 1959. 550 p. Errata slip inserted. 20,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3112
Andreyevskiy, Mir Nikolayevich
KONSTRUIROVANIYE ELEMENTOV RADIOPERE-DATCHIKOV, USTANAVLIVAYEMYKH NA PODVIZHNYKH OB"YEKTAKH (Component Design of Radio Transmitters for Mobile Use) Moscow, Oborongiz, 1959. 261 p. 22,500 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3313
Gantmakher, Feliks Ruvimovich and Lev Mikhaylovich Levin
TEORIYA POLETA NEUPRAVLYAYEMYKH RAKET (Theory of Unguided Rocket Flight) Moscow, Fizmatgiz, 1959. 360 p. 8,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3118
Akademiya nauk SSSR. Komitet po geodezii i geofizike
ODINNADTSATAYA GENERAL'NAYA ASSEMBLEYA MEZHDUNARODNOGO GEODEZICHESKOGO I GEOFIZICHESKOGO SOYUZA (Eleventh General Assembly of the International Geodetic and Geophysical Association) Moscow, 1959. 326 p. Errata slip inserted. 1,800 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3119
Akademiya nauk SSSR. Institut tochnoy mekhaniki i vychislitel'noy tekhniki
SBORNIK STATEY PO MASHINNOMU PEREVODU (Collection of Articles on Machine Translation) Moscow, 1958. 120 p. 300 copies printed. 3 p.

Microfilm $1.80 Photocopy $1.80

BR-SOV/3121
Leningrad. Glavnaya geofizicheskaya observatoriya
VOPROSY SINOPTICHESKOY KLIMATOLOGII I GELIOGEOFIZIKI (Problems of Synoptic Climatology and Heliogeophysics) Leningrad, Gidrometeoizdat, 1959. 81 p. (Series: Its: Trudy, vyp. 89) Errata slip inserted. 1,200 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3125
Likhter, Yakov Iosifovich
IZMERENIYE ATMOSFERNYKH RADIOPOMEKH (Measuring Atomspheric Radio Interferences) Moscow, Svyaz'izdat, 1959. 27 p. (Series: Lektsii po tekhnike svyazi) Errata slip inserted. 10,300 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3137
Wolczek, Olgierd
IZOTOPY NA SLUZHBE CHELOVEKA (Isotopes in the Service of Man) Moscow, Fizmatgiz, 1958. 271 p. Errata slip inserted. 20,000 copies printed. [Translated from the Polish] (Title page): 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3140
Akademiya nauk Ukrainskoy SSR. Institut fiziki
FOTOELEKTRICHESKIYE I OPTICHESKIYE YAVLENIYA V POLUPROVODNIKAKH; TRUDY PERVOGO VSESOYUZNOGO SOVESHCHANIYA PO FOTOELEKTRICHESKIM I OPTICHESKIM YAVLENIYAM V POLUPROVODNIKAKH, G. KIYEV, 20-26 NOYABRYA 1957 G (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed. 16 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3141
Orlov, Vasiliy Ivanovich and Viktor Nikolayevich Trostnikov
SINKHROFAZOTRON NA 10 MILLIARDOV ELEKTRONOVOL'T (A 10 Bev Proton Synchrotron) Moscow, Izd-vo "Znaniye," 1959. 31 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IX, 1959, no. 22) 37,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3143
Krasin, Andrey Kapitonovich
ATOMNYYE ELEKTROSTANTSII; RAZVITIYE YADERNOY ENERGETIKI ZA PYAT' LET. (Atomic Electric Power Stations; Development of Nuclear Power Engineering for the Last Five Years) Moscow, Izd-vo "Znaniye," 1959. 22 p. (Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IX, 1959, no. 25) 37,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3146
Kolotygin, Igor' Nikolayevich
PERENOSNYY MAGNITOFON (Portable Tape Recorder) Moscow, Gosenergoizdat, 1958. 23 p. (Series: Massovaya radiobiblioteka, vyp. 314) 50,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-CHICOM/3147
Wang, Chia-ho
JEN TSAO WEI HSING TI YUN HSING LI LUN (Theory of the Motion of Artificial Satellites) Peking, K'o hsueh ch'u pan she, 1959. 134 p. 6,074 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3149
Konovalov, P. F., A. I. Yefremov, and B. V. Volkonskiy
IONIZATSIONNAYA RENTGENOSTRUKTURNAYA USTANOVKA DLYA ISSLEDOVANIYA KRISTALLICHESKIKH VESHCHESTV PRI RAZLICHNYKH TEMPERATURAKH (Ionization X-ray Apparatus for Study of Crystalline Substances at Various Temperatures) Leningrad, 1958. 133 p. Errata slip inserted. 1,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3150
Vserossiyskaya konferentsiya professorov i prepodavateley pedagogicheskikh institutov
PRIMENENIYE UL'TRAAKUSTIKI K ISSLEDOVANIYU VESHCHESTVA; TRUDY KONFERENTSII, VYP. 7 (Application of Ultrasonics for Analysis of Substances; Transactions of the All-Russian Conference of Professors and Teachers of Pedagogical Institutes, Nr 7) Moscow, Izd. MOPI, 1958. 283 p. 1,500 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3155
Smirnov, Gennadiy Dmitriyevich
ELEKTRONNYYE TSIFROVYYE MASHINY (Electronic Digital Computers) Moscow, Gosenergoizdat, 1958. 87 p. (Series: Massovaya radiobiblioteka, vyp. 315) 42,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3157
Il'inskiy, Nikolay Dmitriyevich
OBOSNOVANIYE ANALITICHESKIKH METODOV STEREOFOTOGRAMMETRICHESKOY OBRABOTKI MATERIALOV AEROFOTOS"YEMKI (Substantiation of Analytical Methods in Stereophotogrammetric Processing of Aerial Photography Materials) Moscow, Geodezizdat, 1959. 178 p. Errata slip inserted. 3,500 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3159
Lyubchik, Mikhail Abramovich
RASCHET I PROYEKTIROVANIYE ELEKTROMAGNITOV POSTOYANNOGO I PEREMENNOGO TOKA (Calculation and Design of DC and AC Electromagnets) Moscow, Gosenergoizdat, 1959. 223 p. Errata slip inserted. 9,000 copies printed. 5 p. Microfilm $1.80

Photocopy $1.80

BR-SOV/3162
Markov, Ivan Pavlovich
LINII PEREDACHI (Transmission Lines) Moscow, Voyenizdat, 1958. 108 p. (Series: Radiolokatsionnaya tekhnika) No of copies printed not given. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3166
Nekhotyayeva, Ol'ga Vasil'yevna
GIDROMETEOROLOGICHESKAYA SLUZHBA V SSSR (Hydrometeorological Service in the USSR) Moscow, Sel'khozgiz, 1958. 22 p. (Series: Vsesoyuznaya sel'skokhozyaystvennaya vystavka) 4,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3169
Manelis, G. B.
PRIRODA KATALITICHESKOY AKTIVNOSTI BF_3 I YEGO KOMPLEKSOV; AVTOREFERAT DISSERTATSII SOISKANIYE UCHENOY STEPENI KANDIDATA KHIMICHESKIKH NAUK (Nature of the Catalytic Activity of BF_3 and its Complex compounds; Author's Abstract of a Dissertation for the Degree of Candidate of Chemical Sciences) Moscow, 1958. 10 p. 100 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3171
Belyayev, Anatoliy Ivanovich, and Lidiya Alekseyevna Firsanova
ODNOVALENTNYY ALYUMINIY V METALLURGICHESKIKH PROTSESSAKH (Monovalent Aluminum in Metallurgical Processes) Moscow, Metallurgizdat, 1959. 142 p. Errata slip inserted. 1,550 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3177
MATEMATIKA V SSSR ZA SOROK LET, 1917-1957 TOM 1: OBZORNYYE STAT'I (Mathematics in the USSR for Forty Years, 1917-1957) Vol 1: Review Articles) Moscow, Fizmatgiz, 1959. 1002 p. 5,500 copies printed. 18 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/3182
Shchukin, Viktor Konstantinovich
SHTURM NEBA (Assault on the Sky) 2d ed., rev. Moscow, Fizmatgiz, 1959. 62 p. (Series: Nauchno-populyarnaya biblioteka, vyp. 59) 50,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3183
Varaksin, Yakov Gavrilovich
RADIOELEKTRONIKA V VOYENNOM DELE (Military Use of Radioelectronics) Moscow, Voyenizdat, 1958. 283 p. (Series: Nauchno-populyarnaya biblioteka) No. of copies printed not given. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3184
Isakov, Petr Kuz'mich, Viktor Pavlovich Kaznevskiy, Valeriy Konstantinovich Lutskiy, and Tamara Lyudvigovna Rapoport
ISKUSSTVENNYYE SPUTNIKI ZEMLI; 100 VOPROSOV I OTVETOV (Artificial Earth Satellites; 100 Questions and Answers) Moscow, 1959. 95 p. 75,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3195
Ragozin, Nikandr Andreyevich
REAKTIVNYYE TOPLIVA (Jet Engine Fuels) Moscow, Gostoptekhizdat, 1959. 120 p. Errata slip inserted. 5,200 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3196
Khitun, Vsevolod Andreyevich
SCHETCHIKI YADERNOGO IZLUCHENIYA I SCHETNYYE USTROYSTVA (Counters of Nuclear Radiation and Computers) Moscow, Gosenergoizdat, 1959. 71 p. (Series: Massovaya radiobiblioteka, vyp. 338) 42,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3197
Saldadze, Kirill Maksimovich
IONOOBMENNYYE SMOLY (Ion Exchange Resins) Moscow, AN SSSR, 1959. 53 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 20,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3198
Nalbandyan, Aram Bagratovich, and Nikolay Sergeyevich Yenikolopyan
FORMAL'DEGID- MATERIAL DLYA PLASTMASS (Formaldehyde: Raw Material for Plastics) Moscow, AN SSSR, 1959. 68 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 17,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3201
Akademiya nauk SSSR. Energeticheskiy institut
GAZODINAMIKA I FIZIKA GORENIYA (Gas Dynamics and Physics of Combustion) Moscow, Izd-vo AN SSSR, 1959. 170 p. Errata slip inserted. 3,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3202
Irodov, Igor' Yevgen'yevich
SBORNIK ZADACH PO ATOMNOY FIZIKE (Collection of Problems on Nuclear Physics) Moscow, Atomizdat, 1959. 150 p. (Series: Uchebnaya biblioteka) 14,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3228
Dzhelepov, B. S.
IZOBARNYYE YADRA S MASSOVYM CHISLOM A=74 (Isobaric Nuclei With Mass Number A=74) Moscow, Izd-vo AN SSSR, 1959. 39 p. (Series: Svoystva atomnykh yader, vyp. 1) Errata slip inserted. 4,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/3236
Pikel'ner, Solomon Borisovich
FIZIKA MEZHZVEZDNOY SREDY (Physics of the

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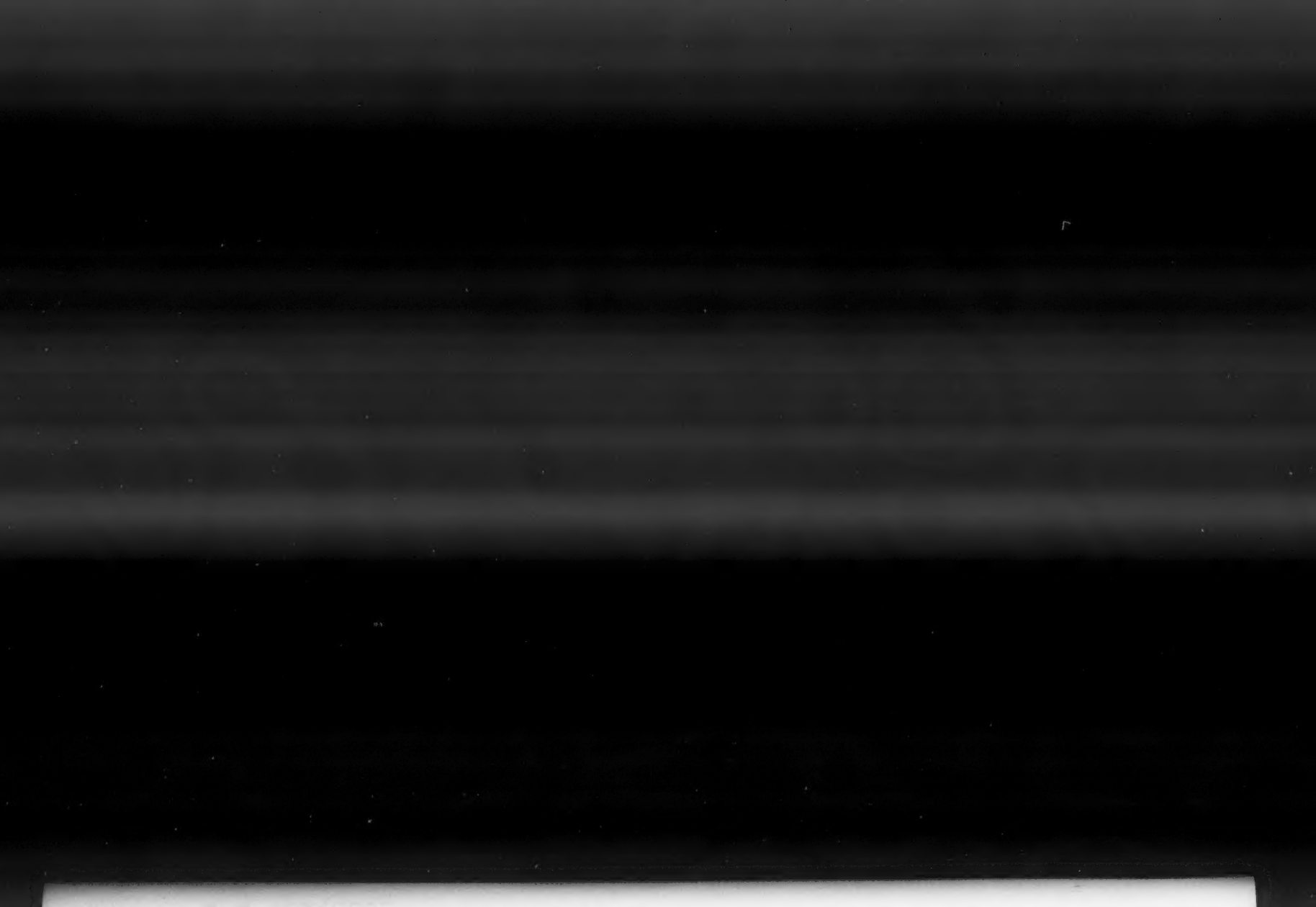

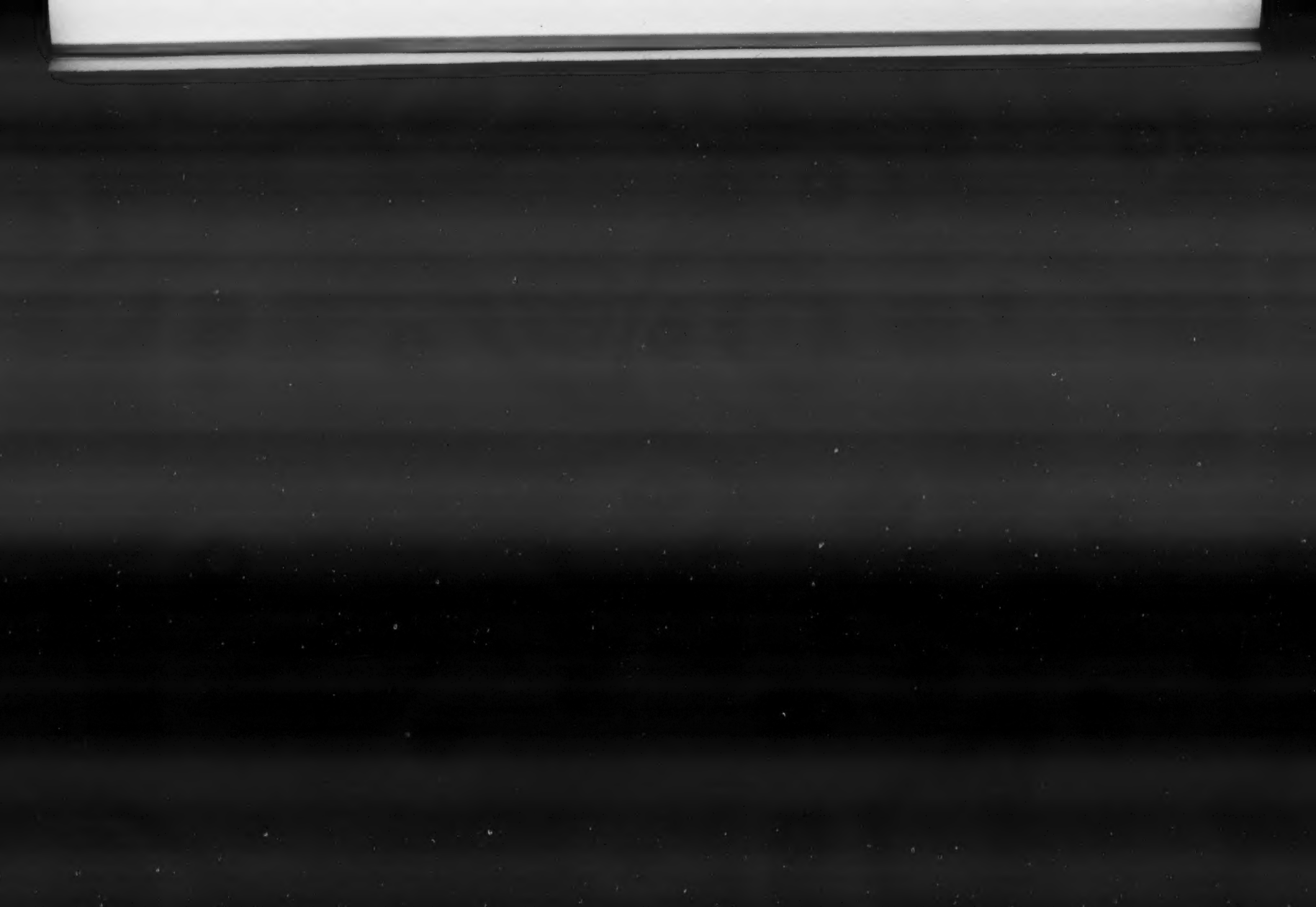

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